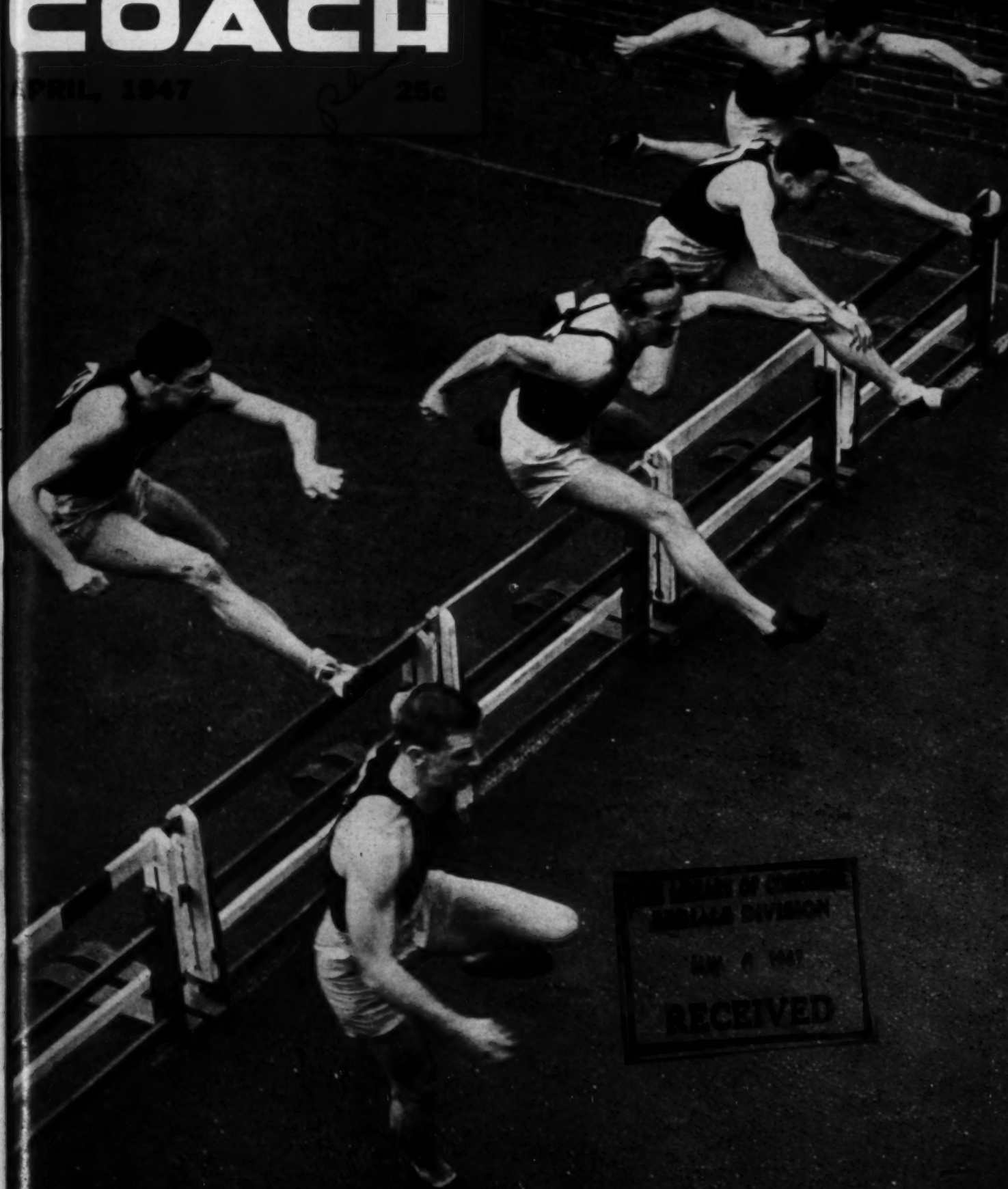


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IN THIS ISSUE

VOLUME 17, NUMBER 8

HERE BELOW (So Firm, So Fully Packed)	5
SPRINT AND BROAD JUMP by George T. Bresnahan	7
BATTER UP!	10
INFIELD PLAY by Charley Gelbert	12
MECHANICS OF THE POLE VAULT (II) by Richard V. Ganslen	14
BEFORE THE RACE AND AFTER by W. Harold O'Connor	20
NEW EQUIPMENT	24
THE FOREHAND (Action Pictures)	26
NATIONAL FEDERATION NEWS by H. V. Porter	30
"YOU HIT WITH YOUR FEET!" by Bert V. Dunne	36
COACHES' CORNER	42
PERSONAL HYGIENE COURSE by Dr. Henry F. Donn	48
(No. 7: Tobacco, Alcohol, Drugs)	
NEW BOOKS ON THE SPORTSHELF	55
COACHING SCHOOL DIRECTORY	62
OUTDOOR TRACK AND FIELD RECORDS, 1947	66
NEW FILMS FOR THE COACH	68

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ARE you a 97-pound stripling? Do people laugh every time you try to lift a ping-pong ball? Wanna be the most powerful man in your neighborhood?

Gosh how we loved those big, fat, beautiful blurbs! Remember 'em on the back covers of *Argosy All-Story* and *Flynn's Detective Weekly*? Remember those muscle hucksters—Atlas, Sandow and Lionel Strongfort?

"Attention, weaklings! You, too, can have a 45-inch chest expansion! Just send in this coupon and I'll tell you exactly how 'Jack the Weakling' slaughtered the 'Dance-Floor Hog.' I'll show you the way to bright eyes, clear head, real spring and zip in your step!"

We used to eye those ads wistfully, ogle the mountains of muscle, and yearn for the courage to mail that coupon.

At the age of 11, like a lot of other fellows of uncommon intelligence, we decided to become the strongest man in the world. But, alas, we got mumps that year and by the time we recovered, we had a new ambition in life—to join the Foreign Legion and rescue Marlene Dietrich from the renegade Bedouins.

So you can imagine our delight the other day when we received an invitation to join a safari to York, Pa. Ever hear of the town? It's the mecca of strong men. Nearly all our Mr. Americas and champion weight lifters are York-bred heifers.

THE thought of visiting our childhood dream world set us quivering with excitement. But we wondered how we rated the invitation. The generalissimo of the safari explained.

"Weight lifters are supposed to be muscle-bound, right?"

We said, "Right."

"Well, it isn't true. Sure they're strong as apes. But they're athletes, not just dumbbell jugglers. How about visiting York and seeing for yourself? Some of the strongest men in the world will put on a demon-

stration for you. You'll see them playing handball, basketball, badminton, and a lot of other sports."

The vision of ten Atlases playing badminton enchanted us. We agreed to make the trip. On the fateful day, we bedecked ourself in our best lion skin and set out for the land of the buffalo biceps.

En route our guide filled in a few vital statistics. Did we know that six months ago the U.S. won the weight-lifting championship of the world for the first time?

We timidly said no, we hadn't heard about it.

"No wonder," our benefactor snapped, "nobody printed a line about it." He then told us about a fabulous character named Bob Hoffman, who was underwriting the trip.

HOFFMAN, it seems, is the "great gawd 'Budd'" of the weight-lifting business. Among other things he is:

(1) the former national weight-lifting champion; (2) president of the York Barbell Co., the world's No. 1 manufacturers of weight-lifting equipment; (3) publisher, owner and editor of *Strength and Health*, the strong man's bible; (4) coach of the Olympic weight-lifting team; (5) founder, coach, backer, and father-confessor of the York Barbell Club, the world's greatest weight-lifting club; (6) a gent with beaucoup dough.

The Coach was waiting for us at the station. He bundled us into his fine-looking car and off we shot to Shangri-la. As luck would have it, we drew the seat next to him. We said, "Pleased to meetcha," and that was the last word we were able to get in edge-wise.

Bob filled in the rest of the 33-minute trip with a monologue on life in general and weight training in particular.

A big, powerful, handsome guy, looking ten years younger than his 48 years, he is completely fanatical about his hobby. And since he owns a wondrous gift of gab and a

charming immodesty, he can talk you into believing baseballs grow on lilac bushes.

We don't mean to be irreverent. Hoffman just happens to be a super salesman with a good product.

HIS interest in weight training dates back to 1923. After an adolescence consisting of a monotonous succession of athletic triumphs, he fell in love with a dumbbell.

He bought himself a pair and in one year jacked his weight up from 170 to 191 pounds. A year later he pushed the scales up to 206 pounds—all of it lovely knotty muscle.

He then sold his interest in a big oil burner company and went into the production of barbells. Today the York Barbell Co. manufactures more barbells than all the other companies in the world put together.

Of Hoffman's 300 employees, 25 are champion weight lifters. Some of them come to him on their own, burning with the desire to train under the old master. Others are "scholarship" men.

They work in the factory at salaries ranging from \$50 to \$200 a week. Each afternoon at 4:30 they knock off work and head for the little gym over the shipping room for a two-hour struggle with the weights.

THAT'S where we caught up with them. Now we've seen the Grand Canyon, the Holland Tunnel and Leo Durocher. But this spectacle had 'em all beat.

Picture a little barbell-cluttered gym inhabited by seven fantastically muscled gents furiously engrossed in the business of lifting heavy objects off the ground. Never have we seen such an accumulation of muscles so round, so firm, so fully packed.

"At last!" was our first thought. "A line that can handle Notre Dame."

"Jules!" commanded Hoffman.
(Continued on page 28)

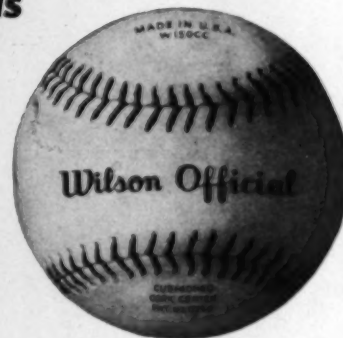
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IT'S TODAY IN SPORTS EQUIPMENT



SPRINT and BROAD JUMP

by GEORGE T. BRESNAHAN

George T. Bresnahan, track coach at the University of Iowa, is known the nation over for his splendid text, *Track and Field Athletics*, written in collaboration with W. W. Tuttle, and for his numerous magazine articles on the sport.

RECORD breaking performances in the running broad jump followed swiftly one after the other in the three Olympic periods from 1924 to 1936.

Successive champions added inches to the world's standard, until Jesse Owens, Ohio State University, established a mark of 26 ft. 8¼ in. in 1935 at Ann Arbor. Approximately 20 inches were added to the world's record within that span of 12 years.

A survey of the champions reveals that they are proficient in companion events. Eulace Peacock, of Temple, was capable of sprinting 100 meters in 10.3 seconds, as well as broad jumping 26-3. Billy Brown, of Louisiana State, was a first-rank sprinter in addition to being a leading broad jumper. Furthermore, Brown in 1941 established an outdoor AAU mark of 50 ft. 11½ in. in the hop-step-jump.

Jesse Owens demonstrated his all-round ability on the same day he set the world's record in the broad jump by winning the 100 in 9.4 seconds, the 220 in 20.3 seconds, and the 220 low hurdles in 22.6 seconds.

Still on the records book is Owens' mark of 24-11¼ made in 1933 when he was a student at East Technical High School, Cleveland, along with his performances of 9.4 for the 100 and 20.7 for the 220.

Ability to both sprint and spring from the ground is universally recognized as a qualification for the broad jumper. Air mindedness, or the know-how of body coordination while in flight, is an additional attribute.

In mastering the broad jump, the athlete should think of his task in

terms of (1) the approach and run at increasing speed, (2) the gather and foot-stamp, (3) the flight through the air, and (4) the landing in the pit in such a manner as to save all distance gained.

Approach. The length of the run is unlimited, but usually ranges from 85 to 115 feet. The run is frequently established with either two or three checkmarks indicating the rate-of-speed zones.

For example, the jumper may take 2 strides at half speed, the next 4 strides at ¾ speed, and the last 8 strides to the take-off board at nearly full sprinting effort.

Colored pegs in the ground at the

side of the runway furnish assistance in both the uniformity of the stride, and the speed of the run.

Repeated trials are required to insure accuracy in the approach.

The jumper is considered to be accurate in his approach if, when running through without jumping, his toe strikes 5 inches beyond the take-off board (toward the pit). The "pawing" movement of take-off leg should rightfully shorten the last stride by 5 or 6 inches.

Gather and Foot-Stamp. When the jumper is about two strides from the board, he settles, or gathers. This is a body adjustment preparatory to the spring. He tries not





to lose speed, but relaxes slightly.

The last stride, as pointed out previously, is somewhat shorter than the others. The jumper strikes the board flat-footed and vigorously, so as to attain "action-reaction." He next executes the rock-up on the toe, simultaneously straightening the take-off leg which has been slightly bent.

The flight begins when the jumper last contacts the take-off board, and ends at the instant the heels touch the pit.

At the instant of leaving the board, the center of gravity should be slightly ahead of the take-off foot.

In the running high jump, the center of weight is correctly over the take-off foot at the moment of the spring. The broad jump, however, requires movement forward in addition to movement upward. For that reason there is a slight forward angle given the body.

Up to this stage, there is uniformity of execution among trained

jumpers. The differences begin in the flight; some using the "walk-in-the-air" and others the knee-tuck.

The Walk-in-the-Air Form is practiced by many good jumpers who make use of a walking motion in the air for the purpose of helping forward movement.

The first action in the walk-in-the-air is taken with the free leg (not the take-off leg), and requires accurate timing. It should not be started until the force of the foot-stamp has been partly spent, because the jumper must maintain his balance in the air by bringing the take-off leg forward.

Since the take-off leg is partially bent and coming forward, he is ready to begin the step with the free leg. The step in the air consists of a downward backward drive of the free leg, in unison with a knee-lift of the take-off leg, as in sprinting. The take-off leg is now brought sharply forward until it is slightly ahead of the free leg.

As soon as the step in the air has

been executed, the knee of the free leg is brought even with the opposite knee as the first preparation for the landing. Next, the legs and thighs straighten out as they touch the pit.

The Knee-Tuck Form. The chief characteristic of this form is that the knees are drawn upward toward the chest and the athlete appears to be in a sitting position at the crest of the leap.

Apparently this jumper gains little from the movement of the legs while in the air. This form has the advantage of simplicity of execution. The body lean at the moment of taking off is from 20 to 25 degrees from the vertical, while in the walk-in-the-air form the body lean is approximately 15-23 degrees.

In one particularly good trial, Jesse Owens' body angle at the board was 23 degrees.

The knees are retained in the tuck position until the jumper starts to lose height, preparatory to the land-

(Continued on page 56)





THESE actual competition pictures of the former national broad-jumping champion (best leap, 26 ft. 3 in.), offer a graphic study of his extreme jumping style.

Fig. 1: The athlete in the double-float stage of his sprint down the runway, both feet being off the ground. He shows good form in the use of arms to aid balance.

Fig. 2: The board is contacted in flat-footed fashion, as Peacock prepares for the lift. While the left knee is not bent at this juncture, it was bent just a moment before (between Figs. 1 and 2). The right knee is correctly bent to shorten the radius and thus increase the speed of the forward swing.

Fig. 3: Peacock has executed a downward and backward thrust of the left leg against the board, involving a simultaneous extension of the leg and thigh and a rock-up on the toe. Center of weight is properly ahead of the take-off foot, which means the body is inclined forward. The right leg, slightly bent, is swung forward and upward.

Figs. 4-5: Gaining height; the right leg is being straightened, and the take-off leg is brought swiftly forward. Good body control is exhibited.

Fig. 6: At the top of his leap, the jumper has started a downward-backward drive of the right (free) leg. The arching of his back along with the rearward sweep of the arms, is an indi-

vidual quirk. The tilt of his head is more pronounced than with the average jumper.

Fig. 9: If the arms had been swung downward and backward at this point, the angular reaction would have thrust the hips and feet farther forward. The body is past the crest and is on the way down. The knees, once spread, are being brought closer together.

Fig. 10: Unusual extension of both legs and arms is depicted here. The heels are brought together. Considerable momentum is necessary to rotate the body over the feet.

Fig. 11: Peacock is "saving" his jump by the judicious use of the bent knees, the outstretched arms, and the lowered trunk. The center of body weight is over the feet.

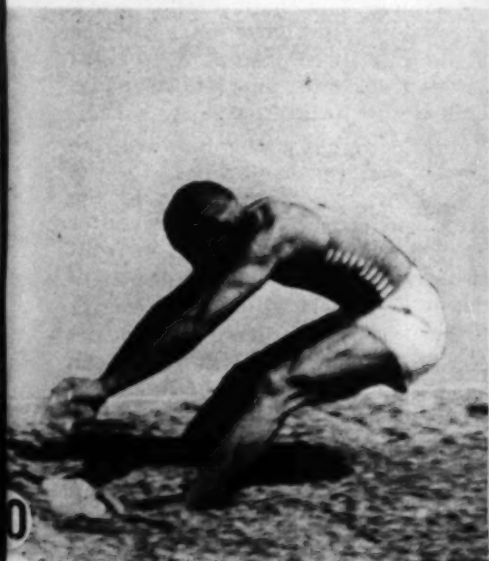
Figs. 12-13: Apparently the jumper gained unusual speed in his approach, judging by the manner in which his weight is rocked over the feet after they have hit the pit. Peacock shows skillful body control in these unusual shots of the recovery phase of the landing.

Broad Jump by EULACE PEACOCK

vidual quirk. The tilt of his head is more pronounced than with the average jumper.

Fig. 7: Body balance is maintained excellently. Both legs start the swing forward. The knees are moderately close together and in line.

Fig. 8: By separating his legs, Peacock correctly lessens the amount of





Stage 1—an erect, comfortable stance.



Stage 2—contact in front of the plate.



Stage 3—wrist-break in follow through.



BATTER

THESE blow-ups from the new Encyclopaedia Britannica film, *Hitting in Baseball* (see page 68 for review), offer a neat visual lesson on the mechanics of the batting swing.

The strip on this page covers the three vital stages of the swing: stance, contact and follow-through.

Stance. The batter takes an erect, comfortable position, a little nearer the rear of the box than the front and close enough to the plate to reach any pitch on the outside.

The bat is gripped lightly a few inches from the end with the knuckles pointing away from the body. The feet are spread about 18 inches apart; front foot a bit closer to the plate and slightly toed out. The weight is more to the rear.

Note that the batter doesn't crouch. He stands fairly erect with the shoulders and hips level and the trunk inclined slightly forward. The knees are relaxed, not stiff.

The bat is held back with the elbows away from the body and the left arm fairly straight. The right elbow is closer to the body and points down.

As the pitcher delivers the ball, the body is turned slightly inward and the bat is gradually brought back. The batter then takes a short low step toward the pitcher with his front foot. This is a slide more than a step, with the spikes just clearing the ground. At the same time, the weight starts coming forward.

Contact. The bat should never meet the ball before or after the stride, but at the instant the weight passes the center line of the body. This is the timing part.

As the weight comes forward, the bat is whipped parallel to the ground with a loose action of the arms and wrists. Note in the center picture how the ball is met in front of the plate with the full power of the arms, wrists and weight.

The arrows indicate the prime points of form. Note that the head hasn't been jerked out of line; it is still "in there" with the eyes still following the ball. The right shoulder has been dropped a bit to guide the bat to the waist-high pitch, but the hips are still level.

The left leg has straightened out

RUP!

and the front toe has pivoted slightly outward to allow the body freedom of action. The back foot is up on the toe.

Now look at the picture in the circled inset. That straight line from toe to toe indicates the straightness of the step. On outside and inside pitches, however, the batter is permitted a little leeway. He may step a bit in toward the plate for the outside pitch, and a bit away for the inside ball.

Follow through. After contact the bat keeps on going in the direction of the hit. The wrists break soon after the impact and follow through completely to the other side of the body.

Observe that the player is well balanced, ready for a quick start to first. The back (right) foot will take the first step.

The entire swing is coordinated beautifully in the sequence on this page.

Observe that fine stance, with the hips and shoulders flat, head facing the pitcher over the front shoulder, arms out, body erect, and weight a bit to the rear.

Then comes the gliding step forward, followed by a free, powerful level bat action. Note how the ball is met in front of the plate off the straight left leg (3).

Compare this picture with No. 4. That's another man batting. Note the remarkable similarity in form, despite the fact that the second batter is meeting the ball more out in front with a shorter step.

Now follow the head from 1 through 7. Notice how it is kept perfectly still. It acts as a sort of pivot for the swing. The eyes follow the ball from the time it leaves the pitcher's hand until it is hit.

You can't hit what you can't see. So impress the boys with the necessity of keeping their heads steady and their eyes on the ball.

One other point: After following through, the batter drops, does not throw, the bat. He does not carry it with him part way to first, as many school batsmen erroneously do. The sooner he rids himself of the bat, the more speed he can generate.



Infield Play

by CHARLEY GELBERT

WHEN you speak of defense in school ball, you think of the pitcher and the infield. I don't have to tell you what a strong infield means to a pitcher. It can make a good pitcher look bad and a fair pitcher look great. That's why it pays to spend a lot of extra coaching time with your infield.

The qualifications of an infielder are: (1) Speed and agility; (2) a good pair of hands; (3) quick thinking; (4) a good arm. These are the four requisites to look for in any boy who wants to be an infielder.

First baseman. This is a natural position for a left-hander. All of the plays are in front of him, and he has an easy throw to second base, to which he does most of his throwing. A right-hander has to field a ball and come to a stop before he can make a play to second. There have been some wonderful right-handed first basemen, but the left-hander has the advantage.

On plays at first, the first baseman must get to the bag as fast as possible, turn and face the fielder throwing the ball, and set up a good target.

The feet should be spread the width of the bag. It is then easy to shift to the right or left to catch the throw. As the baseman comes to the bag, he should touch it with one foot or the other to know exactly where it is. After much practice, this becomes instinctive. This is very important because he must find the bag without taking his eye off the play.

If the throw is to the right-field side of the bag, the shift is to the right and the bag is touched with the left foot. The opposite is true for a throw from the plate side. The baseman must often cross in front of the runner and make the catch in foul territory. A throw from the catcher on a bunted ball, coming directly in the path of the runner, should be taken on either the inside or the outside to give the thrower a better target so that he will not hit the runner.

If the throw is directly to the bag, the first baseman on close plays, should stretch out as far as possible and catch the ball by mov-

One of the greatest shortstops in the National League just a few years ago, Charley Gelbert is now in his second year of baseball coaching at Lafayette College—and doing so well that Lafayette wouldn't trade him for Ted Williams, Bob Feller and the Mexican League. Read his article and you'll see why.

ing his hands toward it. The catch should be made at his maximum reach with the arms *not* giving with the ball. This saves split-seconds on close plays.

Two hands should be used to make a catch whenever possible. Learn to catch the ball and hold it. A good first baseman never drops a ball he can get his hands on.

In case of a bad throw, either high or low, with runners on base, it is advisable to leave the bag rather than make a futile effort at the ball. If the catch means the ball game, then you must do everything in your power to make the out.

In holding runners on first base, stand facing the pitcher in front of the inside corner of the bag with the bag between your legs. This partly blocks the bag and allows either a right-hander or a left-hander to drop his glove on a runner. It also forces the runner to the back of the bag when returning to it.

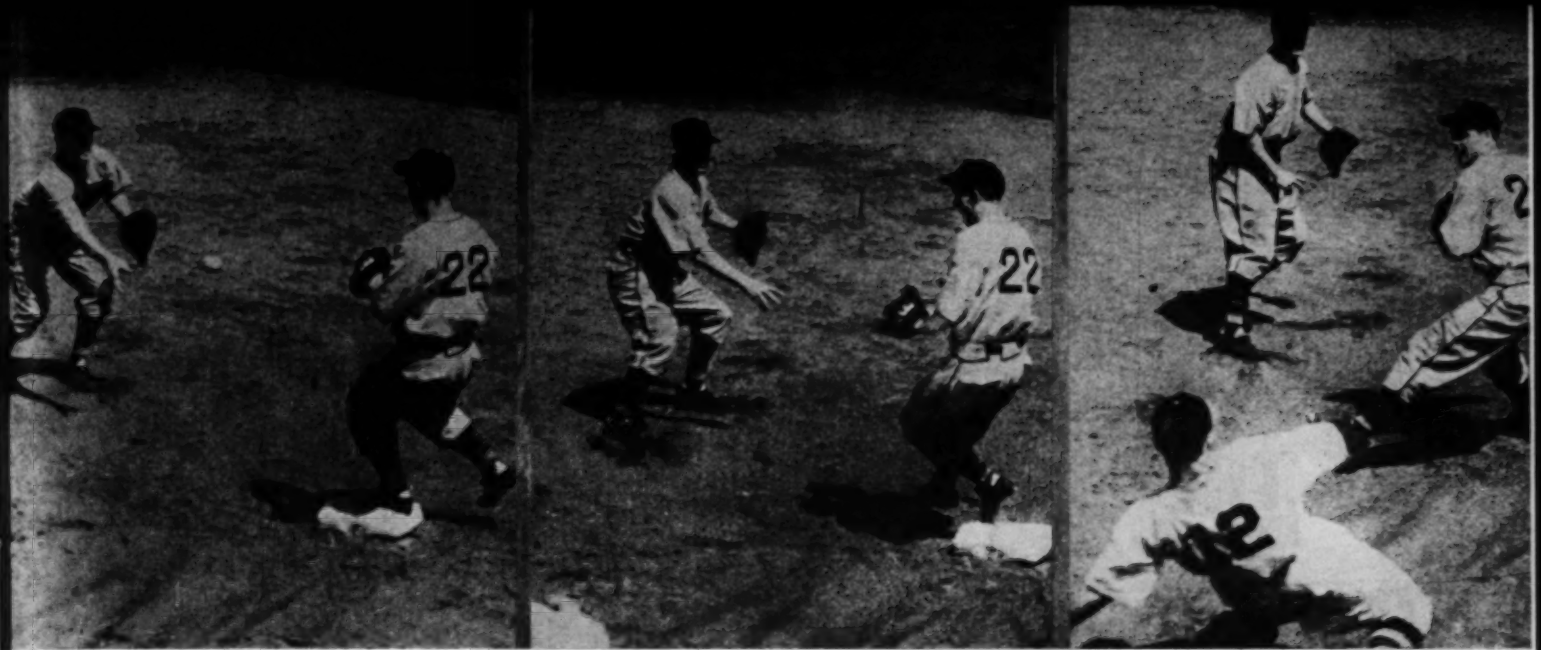
The first baseman should always keep his eye on the pitcher and always be expecting a throw. If the throw is to the batter, he can still jump off the bag into fielding position.

With no one on base, he should take a position according to the hitter. The baseman's ability to go to his right and the position of his second baseman also influence his deployment. Against a slow-footed right-field hitter, for example, he can play deep protecting the foul line to cut off extra-base hits.

The first baseman should team with the pitcher on plays which involve both. He should run the play and make every possible effort to make the out himself.

If he sees he cannot make the play, he should step toward the bag and toss the ball underhand. This is a tough play for the pitcher, and the better and easier the ball

CATCHING THE BALL: Beginning players should be taught to reach out with both hands, make the catch, and "give" with the ball, bringing it in to the body. The player who "fights" the ball instead of "giving" with it, incurs the risk of silly bobbles and hand-shock. (From *Encyclopaedia Britannica* film, "Catching.")



is thrown to him, the easier it is for him to make the out.

Always try to lead the pitcher with the ball so that he can catch it in front of him. Make it high enough so that he does not have to stoop to catch it.

If a bunt is in order, he should run toward home plate and field it if possible. The second baseman covers the bag, and the catcher directs the play.

The drag bunt by a left-handed hitter or push bunt by a right-handed hitter (which they are trying to beat out for base hits) are the hardest plays for a first baseman. He must use split-second judgement as to whether to field the ball or to cover first. Again he runs the play and calls to the pitcher, telling him what to do.

In our practices, we spend hours working with pitchers on all kinds of bunts and hit balls, having them cover first base or field the ball.

The first baseman should act as cut-off man on all throws to home plate.

DOUBLE PLAY: Arky Vaughan and Frank Gustine, former Pirate combination, whip up a fancy ply-kill concoction short-to-second-to-first. Gustine takes Vaughan's underhand lob as his left foot hits the bag. He steps into the diamond with his right foot, carrying him out of the slider's range. He then steps toward first with the left foot and throws with a sidearm motion. The runner's long, beautiful, break-up slide avails him nothing but a strawberry. (Courtesy of Ethan Allen.)

Washington vs. Yankees — 1939 opening game. No outs. Score: 2-1 in the sixth inning. There were three men on base and Gehrig was playing in front of the runner on first base. Just before the ball was pitched, McCarthy ran out and signalled for Lou to play deep. The batter hit a line drive that would have gone for extra bases if Lou had been playing where he was originally. As it turned out, he caught the ball and made a triple play.

Second baseman and shortstop. These two players are known as the double-play combination. Without two good men at these key positions, you will not have a championship team. They **MUST** work together on all plays.

In fielding ground balls, both

these men should get to the ball as quickly as possible; never wait for a ball. Try to field every ball in front of you, reaching out as the ball hops and bringing it toward your body in a rotating motion that will bring you in position to throw as you catch.

You are giving with the ball. If fumbled, it will drop in front of you so that you can pounce on it and still make the out. Never give up on a fumbled ball; get it as fast as you can—there might be a play somewhere.

On the double play, when the ball is hit to the shortstop, the bag is covered by the second baseman. He gets to the bag as quickly as he can. His first duty is to make the first out. He gets the lead man,

(Continued on page 70)



by RICHARD V. GANSLER

Mechanics Of the Pole Vault

Part 2

This is the second of a series of three articles on the mechanics of the pole vault by Richard V. Gansler, one of the greatest vaulters of our time who is now an instructor of anatomy and physiology at Rutgers University.



POLE vaulting is a very complex art. Our vaulters do not convert linear horizontal velocity into height with a simple pendular action.

The chief complicating factor is the presence of the pole. Many beginners vault as though they wished they didn't have it. They jump rather than vault.

Many of them place the pole in the box while running at great speed, then simply jump up past the pole as if it were a lever or handle of some sort, never taking advantage of the help it can give them.

In reality, the vaulter is a pendulum on a pendulum. He is a pendu-

lum free to rotate around his center of rotation (hand grip), while his weight occupies the position of a pendulum in reference to the pole trough. Both these pendulums obey the laws of a simple pendulum, but as they are not distinct and separate entities the following conditions exist.

The velocity of the vaulter's body through the angle θ through XY is directly and irrevocably related to velocity changes through the angle ϕ , from E to F. For maximal mechanical efficiency, the vaulter must achieve a happy compromise between the pole velocity at his center

of rotation (hand grip) and his center of gravity (C.G.).

Body velocity is vital in order that the C.G. will reach the highest point in its flight and the pole will come to the vertical at the same time.

The formula in Illustration 1 represents these factors.

The vaulter possesses a velocity at the moment of take-off proportional to the speed of the run and the stamp of the foot at the moment of departure. The take-off angle of the body C.G. in relation to the ground and the angle of take-off in reference to a line drawn through the C.G. parallel to the ground (the true take-off angle of the body), are shown.

At the instant of the pole plant, the pole has a zero or very low velocity. If the vaulter simply jumped up past his pole (using it as a lever as some beginners frequently do), the pole would develop a minimum forward velocity and the vaulter's C.G. would rapidly pass it.

If, as soon as the vaulter's center of gravity passed the pole, he began to exert pulling force on it, the pole would stop or lose most of its velocity.

"For every action there has to be an equal and opposite reaction." Harris verified this in a gymnastic study.¹² Gravity aided by the effect of the pull-up lengthening the radius r^2 would cause this.

In this instance, the only velocity

$$\frac{d}{dt} \left[r^2 \dot{\psi} - a v q \cos(\theta) \right] = r g \cos(\theta + \phi)$$

$$\frac{d}{dt} \left[a^2 \dot{\theta} - a r r \sin(\theta - a r \dot{\psi} \cos \theta) \right] = a g \cos \phi$$

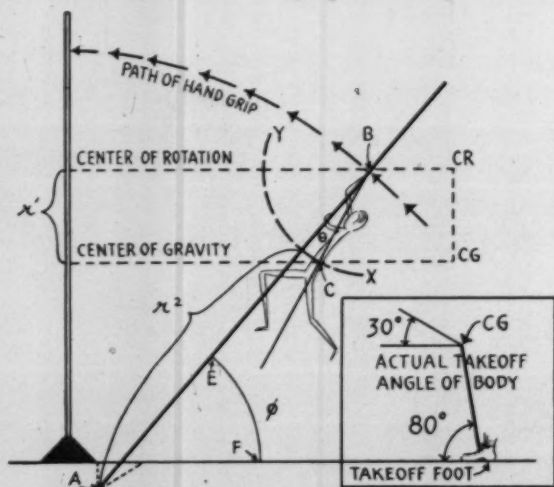


ILLUSTRATION 1

$a = AB$
 $r = CB$
 $\psi = \theta + \phi$

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the pole would acquire would be the result of the pole plant and some slight pendular gain as the vaulter's body swung through.

As the pole would not attain or retain sufficient momentum to bring it to the vertical, the vaulter's body would rush past it to a height governed by the take-off velocity. It might even rise above the hand grip position, but the height gained would be useless because the pole would still be four or five feet away from the bar.

The vaulter imparts a velocity to the pole at the take-off by a thrust with his arm and he helps to conserve and improve this momentum by allowing the arms to lengthen. (See Illustration 2.)

"To conserve angular momentum, lengthen the radius on the down-swing and shorten it on the up-swing."¹³ This lengthening of the arms shortens the radius of the pole pendulum through r^2 and as the body weight drops lower the pole retains and gains velocity as a result of this mechanical principle.

The speed of a pendulum with a specific initial velocity is proportional to the radius of gyration according to the formula

$$S = 2\pi V \frac{1}{g}$$

where l is the length and g the effect of gravity.

At the same time the vaulter is conserving his bodily momentum originating in the run and take-off by lengthening the radius of his swing. The centrifugal force tending to tear the vaulter loose from his handgrip (which is a measure of the energy of projection he possesses) is, at a specified velocity, "proportional to the weight of the body and its radius of gyration."

It therefore holds that tall, long-armed vaulters with a low center of gravity (in relation to their handgrip) develop greater centrifugal force (energy) but they must also possess more absolute muscle power to pull their legs in and up than a shorter man with the same swing velocity.

One of the major errors displayed by even the greatest vaulters at times is the use of too great speed in the run, disproportionate to their ability to pull up.

Muscle tone varies from day to day. Sometimes a vaulter's arms feel strong and his legs not up to par; other days his legs are strong and his arms don't have that "snap." It is the individual's responsibility to subjectively evaluate his condition every day he vaults and to make such adjustments to assure success.

Lengthening of the arms during the early stages of the swing serves three functions: (1) conserves and builds up the momentum of the pole, (2) absorbs the shock of the pole plant in the box, (3) conserves the momentum of the body but does not add to it.

The vaulter permits these conditions to continue only until the center of gravity falls in line with the pole. He now cannot afford to conserve momentum any longer, but must work against time to get his center of gravity above the bar and turn around for the release.

He must begin to actively convert the Kinetic Energy of his run and swing into Potential Energy of height by pulling against the centrifugal force which is trying to tear him loose from his pole. Pole vaulters with poor grip strength or low pull-up power often let one

pole at an angle instead of down toward its center of support. The vertical kick of the legs and the spiralling around the pole in the turn prevents this. Vaulters who push away instead of up from the pole cannot be successful.

If the body weight passes in front of the plane of the pole, increasing the angle θ in front of the pole, "any gain in velocity of the body must be made at the sacrifice of pole momentum."

When all of the above principles are applied in the vault with a minimum of variation, an efficient and successful pole vault results.

Energy in the Pole Vault. The total energy available to the pole vaulter in making his leap is that gained by the run and take-off, and that energy resulting from any work he does in pulling himself to the height of the bar.

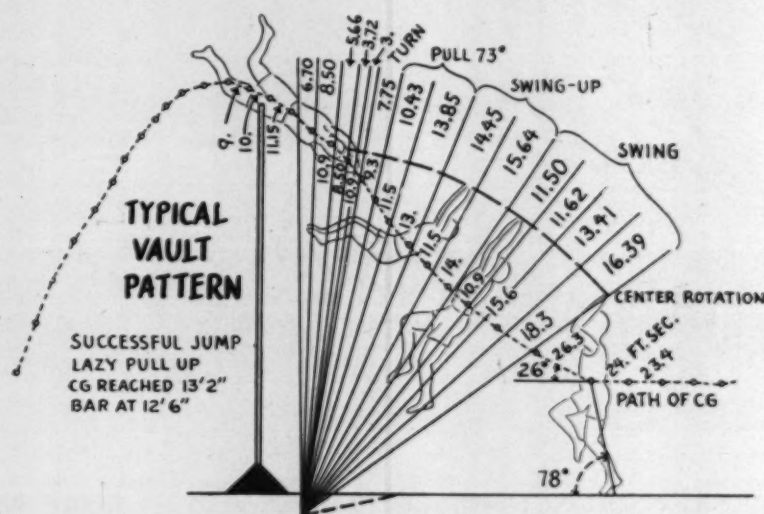


ILLUSTRATION 2

hand (usually the left) slide down the pole from six inches to a foot at this juncture.

At the instant the vaulter's center of gravity falls in line with the pole he can begin to pull. Only as the angle θ becomes zero do we have a simple pendulum with the body on the pole along the radius r^2 . At this instant there is relatively little interchange of momentum between the pole and the man.

Pulling efforts when the center of body weight is under the center of support will not have any additional effect to slow the pole over and above that caused by lengthening the radius r^2 .

Further progressive slowing of the pole as it approaches the bar is due to an increase in the radius r^2 as a result of shortening r^1 .

Complete stopping of the forward momentum of the pole will result if the vaulter pushes against the

This energy gained in flight necessitates good leg action, strong back shoulder and bicep muscles, strong thigh flexors and abdominals in raising the legs, and, finally, speed of action.

Unfortunately, beginning vaulters and some others believe that the energy of the run is sufficient to throw them over the bar, and neglect doing enough work after their departure from the ground.

This will produce only poor jumps. Some men do not have the capacity to do the work in the air as a result of structural weaknesses or poor reaction time, even though they may have mastered the basic principles.

Potential Energy is that energy possessed by the vaulter by virtue of his position in space or above ground. In other words his center of gravity is three feet or so above the ground (about the height of his

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umbilicus) at the take-off. Potential Energy = wt. x height (above the ground).

Kinetic Energy. A moving body by virtue of its velocity has a capacity to do work as it is being brought to rest.¹⁴ This energy of motion (capacity to do work) is called Kinetic Energy. It is computed by the formula $K.E. = \frac{1}{2} mv^2$ where m is the mass of the body and v its velocity.

The vaulter, by virtue of the position of his center of gravity above the ground and his run speed, possesses both Potential and Kinetic Energy. His total Energy is the sum of these two. Total Energy K.E. plus P.E. or T.E. = $\frac{1}{2} mv^2 + wt. \times ht.$

As energy is never destroyed but merely converted to another form, in rising to a given height the vaulter loses Kinetic Energy of motion and gains Potential Energy of

travel in the horizontal direction is wasteful. However, sufficient forward travel must be retained so that the cone of the parabola is wide enough to give the vaulter space or time to clear the chest and arms.

Vaulters who carry too far into the pit are either using too much speed or pulling up slowly and late. They must either slow the run or accelerate the pull-up. Increasing the height of the hand-grip will have the same effect on slowing the speed of the pole (giving the jumper more time) as would slowing the run.

In 45 separate cases studied, the vaulters crossed the bar at from 4 to 10 feet per second. The average clearance velocity was about 6 feet per second, although the angles at which the vaulters projected their bodies varied considerably.

Let us calculate some energy fig-

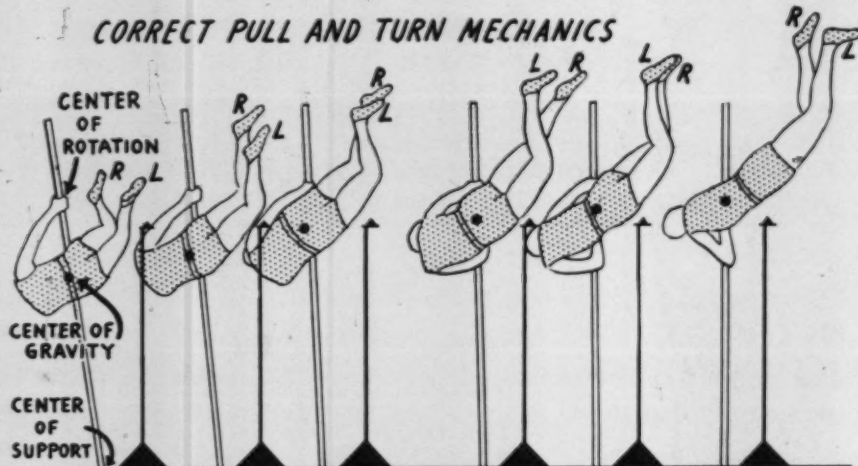


ILLUSTRATION 3

position. The work he does in augmenting his swing velocity and raising himself above his hand-grip depends to a large measure on his pull-up power, the weight he must lift, and the speed with which he does this work.

Therefore, a man may possess a great amount of Kinetic Energy at the take-off, but should he fall down in his mechanics, speed, or direction of pull-up, the energy is useless. The utilization of energy can be determined by observing and analyzing his parabola of flight. (See Illustration 2 and 3.)

If the run velocity is high and the pull-up incomplete or slow, the parabola of flight is flat—too much horizontal travel in proportion to the height achieved.

If the parabola is very narrow at the base and apex, the run was slow or the vaulter utilized his speed and pull-up phase to the maximum extent.

As long as the vaulter retains sufficient momentum to get the body across the bar, any additional

ures for the vault. In this case we will assume that the vaulters have the same build and height but vary in weight by 10 pounds. Both vaulters leave the ground with the same initial velocity. The Total Energy of the vault = the Kinetic Energy + the Potential Energy.

$$T.E. = \frac{1}{2} mv^2 + mgh$$

SUBJECT "A" (Take-Off Conditions)

Body Weight: 150 lbs.
Ht. of C.G. above ground: 3.25 ft.
Take-off Vel.: 30 ft. per sec.

$$T.E. = \frac{1}{2} \frac{150}{32.2} \times 30^2 + 150 \times 3.25$$

$$T.E. = \frac{1}{2} 4.38 \times 900 + 150 \times 3.25$$

$$T.E. = 1921 + 487.5$$

$$T.E. = 2408.5 \text{ ft. lbs.}$$

SUBJECT "B" (Take-Off Conditions)

Body Weight: 160 lbs.
Ht. of C.G. 3.25 ft.
Take-off Vel.: 30 ft. per sec.

$$T.E. = \frac{1}{2} \frac{160}{32.2} \times 30^2 + 160 \times 3.25$$

$$T.E. = \frac{1}{2} 5 \times 900 + 160 \times 3.25$$

$$T.E. = 2250 + 520$$

$$T.E. = 2770 \text{ ft. lbs.}$$

SUBJECT "A" (At 14 Ft.)

Body Weight: 150 lbs.
Vel. of Clearance: 3 ft. per sec.

$$T.E. = \frac{1}{2} \frac{150}{32.2} \times 3^2 + 14 \times 150$$

$$T.E. = 2.2 \times 9 + 14 \times 150$$

$$T.E. = 19.8 + 2100$$

$$T.E. = 2119.8 \text{ ft. lbs.}$$

$$= 26.2 \text{ ft. lbs. per ft. of height.}$$

SUBJECT "B" (At 14 Ft.)

Body Weight: 160 lbs.
Vel. of Clearance: 3 ft. per sec.

$$T.E. = \frac{1}{2} \frac{160}{32.2} \times 3^2 + 14 \times 160$$

$$T.E. = 2.5 \times 9 + 14 \times 160$$

$$T.E. = 22.50 + 2240$$

$$T.E. = 2262.5 \text{ ft. lbs.}$$

$$= 46.1 \text{ ft. lbs. per ft. of height}$$

At the take-off, Jumper A possessed 1,921 foot pounds of Kinetic Energy and 487.5 foot pounds of Potential Energy by virtue of the position of his center of gravity above the ground, or a Total Energy of 2408.5 ft. lbs.

To raise his center of gravity approximately 11 feet above the ground he used roughly 26.2 foot pounds per foot of height.

Jumper B possessed 2,250 foot pounds of Kinetic Energy at the take-off by virtue of his added weight in relation to his velocity and 520 foot pounds of Potential Energy by virtue of his position, or a Total Energy of 2770 ft. lbs.

Jumper B in achieving 14 feet lost 508 ft. lbs. of energy or approximately 46.1 lbs. per foot of height.

At the peak of their jumps, both vaulters possessed reserve Kinetic Energy of projection which if projected properly would have given them some additional height. Jumper A still has 19.8 ft. lbs., while B has a slightly higher reserve of 22.50 ft. lbs.

On a simple arithmetic basis, Jumper A should be able to go roughly .755 ft. or 9 inches higher.

Jumper B, although possessing a higher reserve of energy, has a heavier body to project and will not do quite so well but about .484 ft. or 5.8 inches higher. Theoretically, Jumper A should have achieved 14-9 and B, 14-5¾.

For a more exact mechanics interpretation of this projection, let us treat this as a vectoral quantity. The calculus formula, as appears in Illustration 1, is adequate only so long as our vaulter is holding onto the pole, and is useful only so long as none of the conditions vary—such as the angle of the pole, pole speed or body speed.

In other words, for any given instant in the vault this formula will provide the information relative to

(Continued on page 60)

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Before the Race

...and After!

by W. HAROLD O'CONNOR

A FEW years ago I asked Glenn Cunningham for his ideas on why the average high school mile or half mile did not produce better times. His reply was: "Most boys start their races without an adequate warm-up."

More recently I have been watching the current mile leader, Gil Dodds, in many of his workouts at Boston College. And if his own daily preparations for speed work are any indication, he also places great faith in the warm-up.

Now watch almost any schoolboy warm-up, and notice the glaring difference. Most high school runners have to be driven through a real warm-up. Unless watched, they will take a few haphazard calisthenics, jog a lap or two at a snail's pace, take one or two starts at a trot, and call themselves ready.

ACCENT ON WARM-UPS

For years my teams have heard my demands for more and more warm-up. I am convinced that an inadequate warm-up can undo a week's training. I can't see much sense in working a fellow hard all week and then having him use the first quarter of his race to loosen up and start to run.

First, I'd like to say a word about calisthenics. I consider them especially valuable to distance men and hurdlers, as well as to high jumpers and dash men.

I also believe there are some exercises which should be included in the practice routine but not in the warm-up on the day of a meet.

For example, I am a great believer in plenty of push-ups for all distance men. My milers, cross-country men and even half-milers get them in daily doses. They start with a dozen and go on to twenty or twenty-five later in the season.

Incidentally, you might be surprised to find the correlation of ability to do a large number of push-ups with ability to run cross-country or the mile.

They do develop the arms and upper body, but they should not be used as part of the warm-up on the day of a race. Sit-ups are also valuable as practice preliminaries for

A Scholastic Coach contributor of Grade A standing, W. Harold O'Connor, now coaches track at Concord (Mass.) High School. His star protegee, Val Muscato, recently won the national indoor high school 440-yard title in 51.8 sec.

your distance men, but must be assigned in small doses on the day of a meet.

Gil Dodds will tell you that plenty of walking is an important part of the daily routine. He tells me that he does five or six miles a day before his regular daily workout on the track.

I have always liked the idea and can offer this in its favor. I encouraged my present track captain, Val Muscato, to take a job as a mail man during the Christmas holiday to develop his legs for the 600. He averaged about ten miles a day.

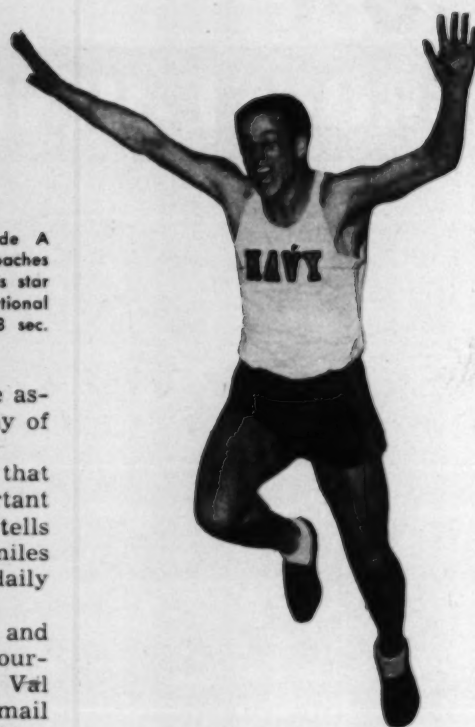
After the holiday he came back and frequently mentioned how much better he felt in his regular workouts. He recently ran 1:14.6 for his 600 to establish a new state and probably a new national schoolboy record for the distance. I attribute his amazing time partly to his days of walking.

The usual deep knee bends, knee lifts, and rolling of the body from the hips are all good. The popular running in place with high knee lift and accompanying fast driving of the arms is also very good for your sprinters and hurdlers. Running up short flights of steps or stairs is good for knee drive during the week, but I consider it too tiring for the pre-meet warm-up.

The stretching exercises for hurdlers are old but proven aids. I like to see hurdlers making use of them on the day of the meet. The practice of going slowly up to a hurdle and stepping over it quickly is also a good warm-up aid.

From experience gained by testing, I have come to question the value of extensive jogging as a proper warm-up. Its values seem limited. I have found that a couple of laps at a good stiff stride that will stretch the muscles to be used in the race, are more worthwhile to a distance man than a long period of jogging.

The sprinter needs to do more than a few jogs to ready himself



for his race. He needs several actual starts carrying through for 50 or 60 yards. These straightaways should start at a moderate speed. After a couple have loosened the sprint muscles, the runner should take a few at high speed. Then he should get into his sweat suit and keep warm.

Relay runners should, of course, take a few practice passes of the baton. These should be at racing pace for correct timing of the pass.

SCHEDULE FACTORS

Among the things I consider important in planning the boy's warm-up are the weather, the time schedule of the meet, and the temperament of the runner.

Some boys take exactly the same warm-up on a cold day as they do on a warm June afternoon. This seems rather silly. It probably is responsible for most of the pulled muscles we have at winter meets run on outdoor board tracks.

I want my boys really sweating when they finish their warm-up work on cold and windy days. The colder the day, the more I want them to keep moving. When the weather is balmy and the sun alone almost does the warm-up for you, I want enough work to loosen muscles and work up a good perspiration.

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winds, even on otherwise warm days. *Make* your dash men warm-up gradually to avoid sudden strain on the sprint muscles.

The time schedule of the meet is an important consideration in deciding on the boy's warm-up. If the boy is in only one race, have him get in his real loosening-up work at least a half hour before his race is scheduled. Then, about ten minutes before his event is called, let him do a little more work to tune up for the race.

If he has to double, a good rest will be in order between events. Get him off his feet, but also off the ground. A rubdown carefully applied for relaxation is valuable here.

EASY WARM-UP

About ten minutes before his second race, let him take an easy preliminary warm-up. His first race should have readied his muscles, if he is really in condition.

If you run into trouble and get to a meet late, you can get a boy ready faster by giving him three fifty-yard straightaways at gradually increasing speed, than by having him jog.

The third point to consider in preparing the boy for his race is his temperament. Is the boy high-strung, worrisome, or easy going, placid and slow to work up a sweat?

Watch the first boy; he is likely to overdo his warm-up. Unless you stop him he may leave his race on the track. Get him perspiring and then, if possible, get him out of sight of the boys he must meet in competition. If you don't, he may worry himself out of the race. Do anything to make him laugh, relax, forget the other fellows.

Your second type needs to be driven through his warm-up; otherwise he may dog it and not be ready for his event.

I don't advocate making a practice of pre-race rubdowns. They have real value for the runner who has sore muscles. They also have a wonderful psychological effect on certain runners when given before important races.

But they can also be a nuisance if the boys expect them daily. When that happens I doubt their value. I may differ with many coaches in this contention, but I am convinced that the boys get more value out of rubdowns *after* races or *between* their events when they have to double, than they do out of those given before a race.

A rubdown is not a panacea and it can be more harmful than good with some injuries. I also like a

rubdown the night before a meet. This often helps the boy get a good night's rest.

Now, as to what happens to your runner after his race! First, let me say that I emphatically discourage "drapers." You've seen it many times. A boy finishes a hard race and immediately a couple of his teammates rush to the track to grab him and drape his arms over their shoulders as they half carry him around the track.

I want my boy to continue to a gradual stop without hindrance from meet officials, teammates or well-meaning bystanders. I want him to slow down gradually and then continue at an easy jog and then a walk until he recovers.

Half the people who berate track do it because they are upset by these track dramatists who always manage to reach the tape, but who suddenly collapse a yard beyond. Nine times out of ten it's an act. If you see a boy wobble and weave *before* the tape, he probably does need help.

Get your runners to have some pride in their condition. Have them wave the helpers aside so that they can slow down gradually. They will be much better off than they would be by being grabbed before they have a chance to stop.

DISCOURAGE FAKERS

If a boy has overextended himself and is falling, certainly grab him if possible. Cinder burns are no fun! If he is on his feet, obviously in control of himself, *leave him alone*. Don't encourage "fakers." Fellows who make a final grand lunge at a tape that has already been broken are putting on an act. Point out to them that such acts discourage other fellows from trying track.

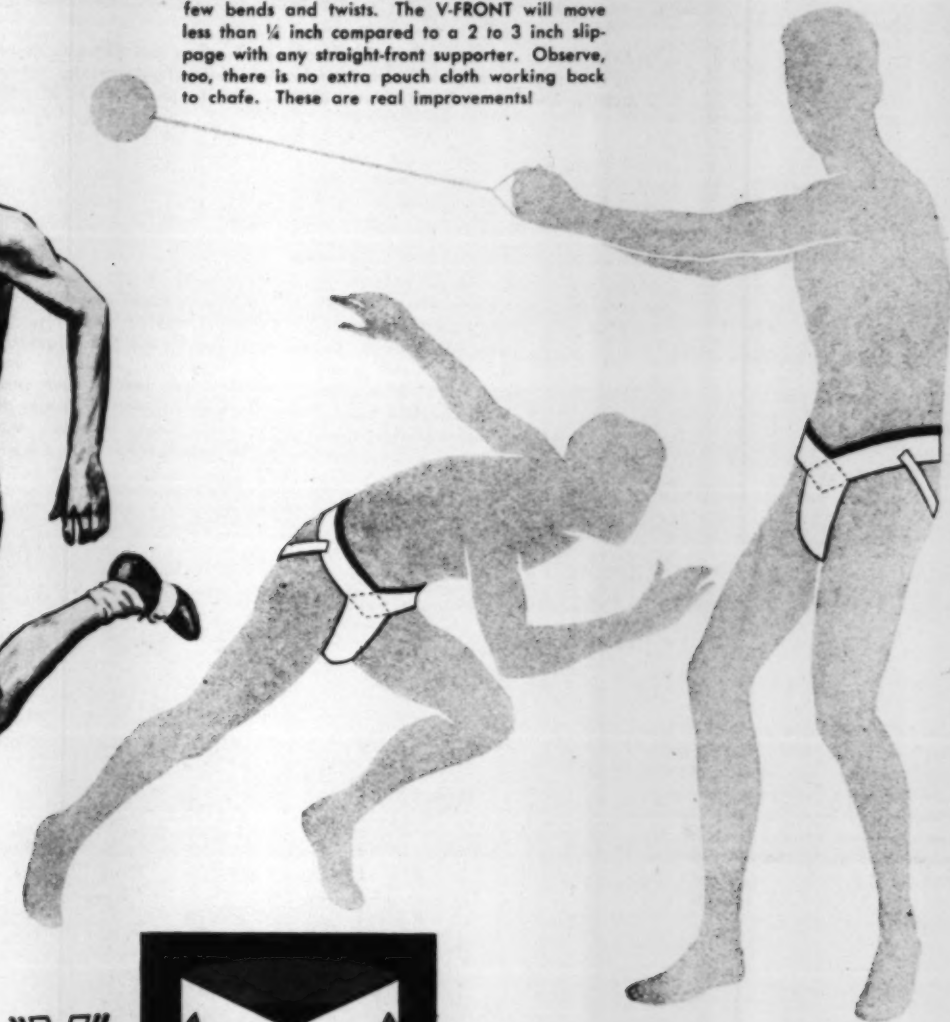
Finally, and most important, *don't* let the boy flop over on the ground and lie there to recover his breath. Don't let him lie on the ground between heats or between races. The cold ground will stiffen his muscles and may even give him severe chills. Again, keep the boy off the ground if you want him on his marks ready to go.

Another point to emphasize is the matter of donning sweat suits after hard races. Don't let the boy walk around in his scanty uniform, especially in cold weather. The sudden drying off frequently produces chills and bad colds. Get the boy into the habit of putting on his sweat clothes while the perspiration is still on him.

This also holds true, of course, for all your daily practice sessions. Watch those cold bugs!

TRY IT IN ACTION!

Put on a new TRUMP Supporter with the V-FRONT* construction. Place the waistband low on the abdomen. Pencil-mark its position and then do a few bends and twists. The V-FRONT will move less than 1/4 inch compared to a 2 to 3 inch slippage with any straight-front supporter. Observe, too, there is no extra pouch cloth working back to chafe. These are real improvements!



This "V"
won't slow up
their best efforts



In the split-second competition of a track meet, they've no time to spend worrying about slipping, sagging supporters. The new Johnson & Johnson V-FRONT Supporters offer your teams comfort, protection, freedom from embarrassing adjustments.

Note how the V-FRONT provides *lifting* action, keeps the pouch in place. The all-elastic waistband follows body contours, fits constantly,

stays put. V-FRONT construction means *comfort-in-action* for every boy on every team you coach! TRUMP and RUGBY V-FRONT Supporters are sold at drug and sporting goods stores. Write to Johnson & Johnson, New Brunswick, New Jersey, for booklet.

*Patent pending

* (For sprained or weak ankles, knees, wrists or other athletic injuries, try ADAPTIC - the Johnson & Johnson elastic bandage.)

Johnson & Johnson

ALL-ELASTIC

V-FRONT SUPPORTERS

NEW EQUIPMENT

As a service to its readers, Scholastic Coach offers this periodic round-up of new sports equipment items. For further information write to: Scholastic Coach, New Equipment Dept., 220 E. 42 St., New York 17, N. Y.



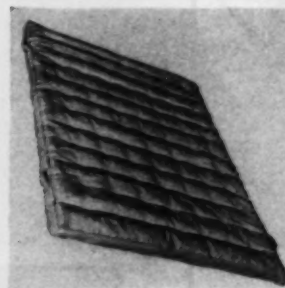
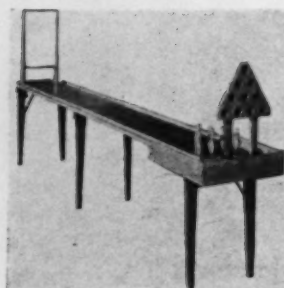
A Uniform Hanger large enough to accommodate complete sets of equipment has been introduced by the American Wire Form Co. Built of heavy gage steel wire, it permits air to circulate around garments and dry them quickly.



Western Xpert 22 Long Rifle Cartridges are again being distributed through regular channels. Developed specifically for target shooters, they are especially recommended for indoor and practice shooting. They will add extra points to your scores without adding extra expense.



Skill Bowl, produced by Allied Plastics, Inc., is a scale model game which brings the thrills of the bowling alley into your recreation room or home. The ball hangs from a cord at one end of the alley. You stand back, take aim and let the ball swing. It will detach itself from the hanger and speed toward the pins.

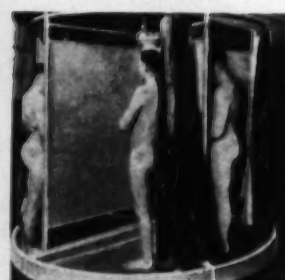


Wagner Gym Mats are double-tufted and compression tied; soft, durable and needle-free. Covered with No. 6 or No. 8 sturdy duck, they are stuffed with genuine felt or 100% goat hair and can be purchased in all popular sizes. Equipped with reinforced side handles for extra handling ease.



Plastic Rock for Stadiums, a packaged floor put out by United Labs., Inc., eliminates all guesswork in floor resurfacing and repairing. Quickly and easily repairs concrete, wood, brick, or steel surfaces without expensive removal or chipping of the old floor. Tough, skid-proof, fire-resistant, sound absorbing.

Multi-Stall Showers are available in circular and semi-circular types, accommodating five or three users, respectively. Put out by the Bradley Washfountain Co., they can be quickly and economically installed in either new or old buildings. When equipped with receptors, installation can be made on any type floor.



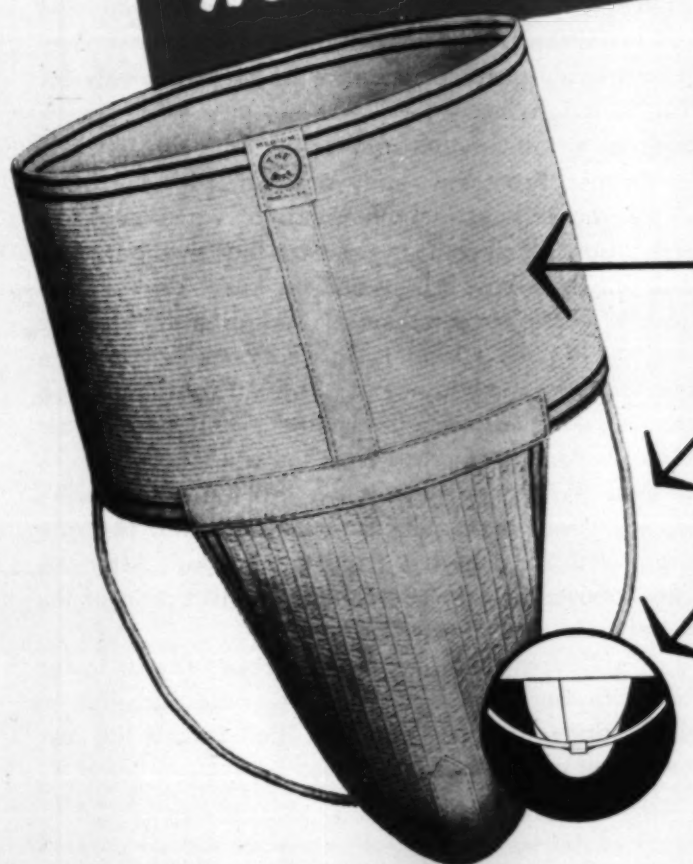
Sea-Net Speed Flippers, when fastened to foot, increase swimming range and speed-up to 40%. Wide surface adds power to kick and takes effort out of water sports. Bottoms are flat, permitting wearer to walk. Moulded from soft rubber to fit contours of foot, they are adjusted by loosening or tightening heel strap.



Snare-M, the Wilson Sporting Goods Co.'s new first baseman's mitt, does exactly that. Of ultra modern design, it is made of selected thoro-tan cowhide and features a webbing that gives the pocket a surer and wider spread, enabling the first baseman to spear those scatter-arm throws. Ideal for baseball and softball.

A **NEW** WIDE BAND BIKE SUPPORTER

NO. 96



FEATURING

- ❶ **WIDE WAISTBAND**— $6\frac{3}{4}$ " all-elastic waistband of a heavier material for greater support and longer wear.
- ❷ **TUBULAR LEG BANDS**—specially designed of soft, light, rayon-covered, tubular elastic. Won't crease, curl or roll. Greatest advance in supporter construction in years!
- ❸ **SELF-ADJUSTING POUCH**—brand-new, sliding loop attachment of leg band to pouch provides uniform tension at all times in all positions . . . gives much greater comfort.

Bike Web leads the way in protective elastic supports. This new supporter means added comfort and protection to athletes. So ask your athletic goods supplier *now* for the new wide band Bike supporter with the new comfort features . . . *Bike No. 96 Supporter!*



FREE "SPORTS TRAIL" News Letter

For coaches, athletic directors, trainers, etc.—monthly "Sports Trail" edited by Arch Ward, Sports Editor, Chicago Tribune. Write Department K7-4—it will be sent to you each month free.



THE BIKE WEB COMPANY

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The Forehand

Demonstrated by SARAH PALFREY COOKE

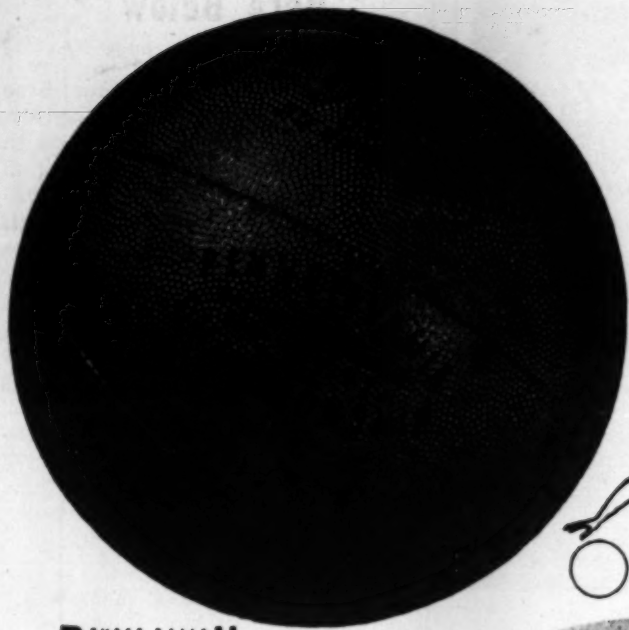
PETITE Sarah Palfrey Cooke, woman's national champion in 1941 and '45 (now in retirement), illustrates the mechanics of her forehand drive in this remarkably graphic sequence posed exclusively for LOOK, America's family magazine.

Her stroke is based on a full, smooth arm action with the left side of her body facing the net. From the ready position, with the body facing the net and the racket held in both hands at waist level (1), Sarah pivots the right foot, placing the weight on that member, and takes her racket back (2). The elbow is bent and the knees are relaxed.

The left foot steps over in the same motion (3), bringing the left side perpendicular to the net. As the racket is carried back beyond the shoulder, the left arm stays up for balance (4). The left foot is planted firmly and the racket is swung forward freely and evenly away from the body, with the weight coming forward from the rear foot (5).

Contact is established slightly in front of the left hip (6) at arm's reach from the body with the weight fully behind the racket. The arm is comfortably straight and the eyes are fixed on the ball. After the impact (7), the racket follows through naturally in the direction of the hit, finishing on the left side of the body (8).

A word as to the grip: Keeping the racket face perpendicular to the ground, shake hands with the shaft as near to the end as possible so that the thumb and forefinger form a V on top. Then extend the arm so that arm and the racket are in a straight line.



By actual test this new kind of basketball wears three times longer than conventional balls. It performs with the best, yet the price is one-third less than comparable top-performing balls . . . frequently even lower. In size, weight, shape and performance it's official in every way . . . and it stays that way! Get the facts and prove to yourself that this better playing ball is your best buy.



THESE BALLS
COVERED WITH
PERMA-HIDE

PERMA-HIDE is the name for a new, molded cover for athletic balls perfected by Pennsylvania. All the feel of the conventional cover yet it wears three times longer.



*For longer wear...
better play...
lower cost*



Any softball pitcher with good control will have better control with this new, easier-to-grip, longer lasting softball by Pennsylvania. New methods of manufacture cause this ball to hold its shape longer, retain its perfect weight indefinitely, remain absolutely waterproof. Inner construction of high-quality Kapok, wound with finest, stretchless cotton yarn. 12-inch.



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The ball of Champions

PENNSYLVANIA RUBBER CO. • PENN-CRAFT PARK • JEANNETTE, PENNA.

You Get RESULTS with Western



Top; Solid Point Xpert 22 L.R.—Bottom; Super-X 22 L.R. Hollow Point... Both shown larger than actual size.

Your school-coaching work is, of course, your vocation. But, with your shooting skill, you can enjoy many happy hours with shooting as an avocation.

For example, you, a Winchester 22 rifle and a pocketful of Super-X 22 Long Rifle hollow points can make fast friends with a farmer on a "pest" hunt. Here's why. Take the long range power-house punch of Super-X for small game and pest shooting... its Lubaloy-coated hollow point bullet rips through space at 1400 feet per second as it leaves your gun muzzle. When it hits, it mushrooms like a big game bullet. It leaves the rifle bore clean—prolongs its life because of Western's greaseless, invisible wax bullet coating. Western Cartridge Company, East Alton, Ill., Division of Olin Industries, Inc.

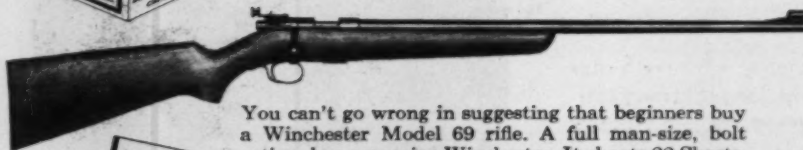


POWER-HOUSE PUNCH

Photograph shows the effect of the SUPER-X 22 L. R. hollow point bullet fired into a cake of soap. Controlled expansion produces maximum mushrooming. The cavity in the SUPER-X hollow point bullet is exactly the right size and shape to assure the most effective expansion after the bullet has penetrated.



Get your youngsters started right... with the extremely accurate Winchester Model 69 or Model 75 Target Rifles and Western Xpert 22 cartridges. Later, they'll graduate to a Winchester Model 52. Then see that they shoot Western Super Match Mark II. Contact your dealer for all Western-Winchester products.



You can't go wrong in suggesting that beginners buy a Winchester Model 69 rifle. A full man-size, bolt action, box magazine Winchester. It shoots 22 Shorts, Longs or Long Rifle cartridges. Made by Winchester craftsmen, it's a lot of rifle at moderate cost.

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Edited with the help of the N. R. A. it gives up-to-date "tips" on organizing and running top-notch rifle clubs.

Western

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"Here Below"

(Continued from page 5)

"do a couple of warm-ups for these nice people." Jules Bacon, the Mr. America of 1943 ("the man with muscles on his muscles"), stepped forth. He casually picked up a 300-pound barbell, pressed it to his shoulders, then did 15 deep-knee bends!

Try it some time—if you feel like rupturing a kidney or two.

Next, Emerich Ishikawa, the featherweight weight-lifting champ of the world, and Stanley Stanczyk, middleweight champion, started doing impossible things with different types of barbells, grinning and joking as they deftly juggled the weights.

The rolling muscles were beginning to make us a little seasick. But scientific curiosity got the better of us. When the boys dropped the weights, we took off our jacket and walked over to one of the lighter numbers—weighing about a million pounds.

We took a deep breath, tensed our 190 pounds of lard, grabbed the barbell and heaved. Nothing happened. Somebody must have nailed the darn thing to the floor when we weren't looking. We put back our jacket and resumed the role of innocent bystander—this time for good.

AT this juncture another guy entered the gym. He peeled off his sweatshirt and our eyeballs popped. The fellow had a pair of arms that must have been carved out of Boulder Dam.

"That's Steve Stanko," gurgled Hoffman proudly, "our former heavyweight champion. He has the greatest biceps in the world. Want to feel his muscles? Hey, Steve, come over here."

The mountain refused to go to Mahomet. So Mahomet went to the mountain. Steve, a shy guy, then flexed his muscle for us. Although we have a big hand, we could barely manage to encompass the Stanko bicep.

"It's 19 inches," Steve explained apologetically. Upon further probing, he reluctantly admitted to a 50-inch chest, a 31-inch waistline and a 17½-inch neck.

"Steve could have been the greatest fullback in America, if not for me," interpolated Hoffman. "He was a star at Woodbridge High School (N.J.), when I discovered him. All the colleges were hot on his trail. But I needed a heavyweight for my team. So Steve gave up football and came to York."

"Can you still play ball?" we asked Steve. "Are you still loose and limber?"

"Sure," he answered. "In fact, I'm probably a better athlete than ever. I may have big muscles. But that doesn't mean I'm muscle-bound. Why, I can throw a football or pitch a baseball better than I could when I was in school."

What happens when he goes to the beach?

Steve grinned. "Yeah, people stare and make cracks. Like the time I passed a couple of girls sitting with a real big guy who, someone later told me, was captain of the Illinois wrestling team.

"One of the girls said, 'Look at those muscles!' The big guy sneered, 'Ayh, he's muscle-bound.' I stepped up to him—"

We leaned forward waiting for the breath-taking climax.

"—I stepped up to him and said, 'Can you lean over and touch the ground with the palms of your hands?' And you know, the big guy couldn't do it! He then apologized for calling me muscle-bound."

ON the way to the station we asked Bob Hoffman what values weight training had for school and college athletes. His theory was arresting.

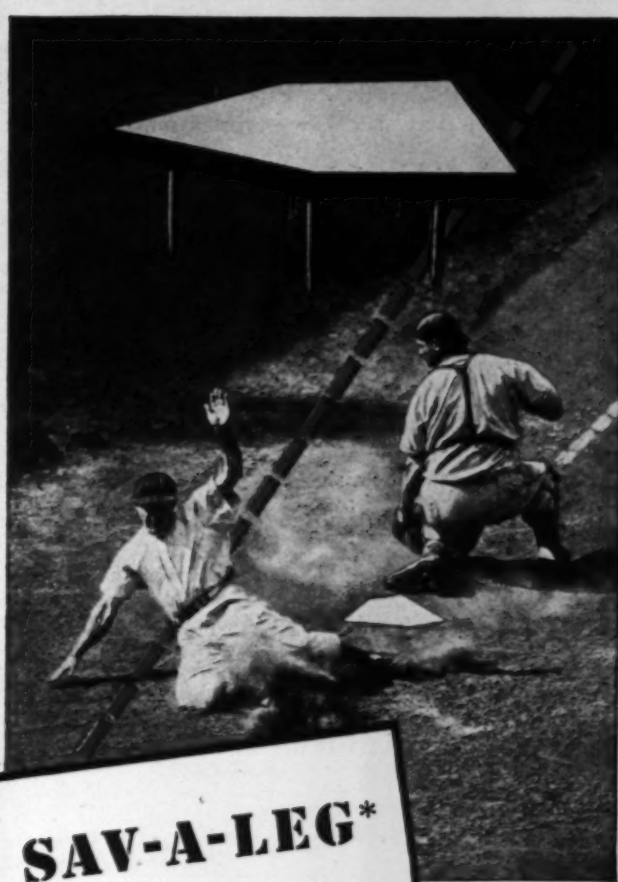
"I believe that every athlete should build his body with barbell work before practicing with his weapon. A sound program of weight training develops the body to a degree impossible to attain through any other means.

"It is the fastest way of gaining weight and developing hard, functional muscle. The weight-trained athlete can do everything the normal athlete can do—only better.

"Doesn't it stand to reason that athletes with powerfully developed arms, legs, chest, and abdominals can spring higher, run faster, react more quickly, throw farther, and hit harder than athletes with just average musculature?"

Hoffman then rattled off the names of about 50 athletes who improved their performances through weight training. He suspects Doc Blanchard of having done some weight work. He met Blanchard up at the Point last summer and was impressed with Doc's familiarity with weight equipment and nomenclature.

While waiting for the train, Hoffman expanded his chest for us—throwing it out into the middle of next week. "Everytime any one writes about weight lifting," he complained, "they try to make it humorous. I can't see what's funny about it."



SAV-A-LEG* Home-Plate

APPROVED AND USED!

Official with major leagues, semi-pros, colleges and high schools. The *only* home plate with beveled sides that slant *into* the ground. Assures a safe, smooth landing! Umpires and players agree that it is an *outstanding* technical advance . . . "SAV-A-LEG"—the most famous name in home plates.

FINEST QUALITY SINCE 1877

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ATHLETIC GOODS DIVISION
THE SEAMLESS RUBBER COMPANY
NEW HAVEN 3, CONN., U. S. A.

National Federation News

THE new Track and Field Guide for 1947 includes a number of interesting modifications and additions. Several of these represent slight changes in the rules.

(1) Each timer is expected to hand his watch to the head timer who will record the time for each watch. This is designed to prevent the chance of error when three men read the watch.

(2) The length of a running stride is now placed at approximately 7 feet. This is the distance a runner must be in advance of a competitor before he is permitted to cut in front of him.

(3) A slight change in the wording of Rule 6-3 covers the situation where a runner crawls or rolls across the finish line. If a runner goes to the finish standing up, he is considered as having crossed the finish line when any part of his body (not including arms or legs) touches the plane which represents the finish. If he has fallen to the ground, he is not considered as having crossed the finish line until his entire body is through such plane.

(4) In order to speed up meets in which some competitors have overlapping field and track events, it is now permissible for a field judge to grant a broad jumper the right to take some of his trials out of order. If the field judge thinks it desirable, he may allow a jumper to take two or three of

his trials in succession. This is an experiment and does not apply to other field events.

Cross-Country: A new section deals with the management of cross-country meets. The article includes a diagram showing a type of finish chute that has proved to be quite satisfactory. Meet managers have learned that one of the biggest problems is to pick finishing competitors in the proper order. If there are a great many entries, it is necessary to have a chute roped off to assist the checkers and finish judges.

National record: Only one national high school record was established last year. This was in the shot put. The new record holder is John Helwig of Mt. Carmel Catholic High School, of Los Angeles. His new record is 59 ft. 5½ in.

The Supplement: The honor roll contains the names of the ten best 1946 performers in each of the events. The table showing the state high school records in each of the events and the national average has been brought up to date. This table has been used as the basis for some interesting illustrated track materials.

One of these displays indicates which state has the best performance in each event. **California** leads the field with the best records in four of

the events, high hurdles, 880 relay, 440, and shot put. This state is also tied with **Ohio** in the 220 dash (21.9 s.) and is tied with **Oregon** in the mile run (4:24).

Missouri ranks second in number of records. Their performances are best in the 880 and the broad jump.

Ohio, Indiana and Oregon have the best records in one event and are tied with some other state in one more event. **Texas** and **Wisconsin** have the best record in one event each.

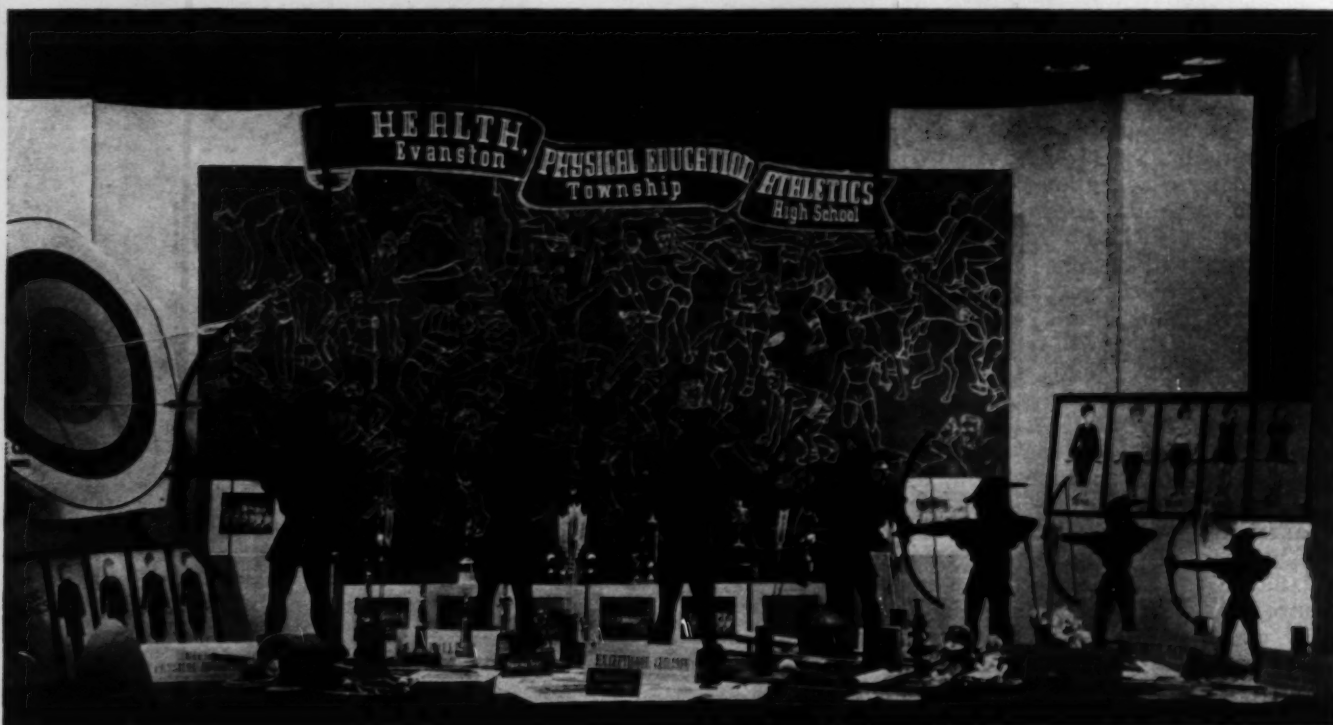
BASEBALL DEVELOPMENTS

LAST year there was a resurgence of interest in high school baseball. A **Mississippi** newspaper states:

"High school baseball has staged a comeback that has resulted in this sport sharing honors with football, basketball and track as major high school sports."

President Sale Lilly reports another 15% increase in number of schools that will play baseball. The southeastern states have turned to this sport as an addition to a well-balanced school athletic program. Competition does not close with the ending of school in the spring but is con-

(Continued on page 34)



Schools interested in educating the public to the broad concepts of their physical education and athletic programs, will be interested in this novel educational exhibit employed by the Evanston (Ill.) Township High School Health Committee in interpreting the school's program to the community at large. Appearing in one of the large windows of the Public Health Service Building, it presents in a

clear, concise manner all of the basic areas of health. Each of these areas is represented by an archer whose arrows designate improved health services. The Health Committee and its supervisor, Miss Mary Cutler, were assisted by the art department in the arrangements.—Leo J. Samuelson, director of health and physical education. (Picture by Eugene L. Ray.)

RIDDELL

Salutes the
BASKETBALL
CHAMPIONS
of 1947!



... and here is the shoe that will win the championship
in 1948—the RIDDELL Basketball Shoe with a Molded
Rubber Sole.

This champion of Leather-Top Basketball Shoes is the
fastest starting and stopping shoe on the market,
possessing a shock-absorbing quality that staves off
fatigue and makes for superior performance.

Of pre-war quality at the fairest possible price,
RIDDELL'S Championship Shoe will be ready for School
and College basketball teams next season.



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Actual size reproduction of
Tennis Medal award; set in
three colors, gold on bronze.

Announcing the Scholastic Intramural **TENNIS** TOURNAMENTS

ENROLL your school now in the **National Scholastic Tennis Tournaments**, open to all senior and junior high schools in the United States.

No entry fee — no red tape attached to entering.

The coupon below will be accepted as an entry.

Scholastic Tournaments are strictly **intramural**

Every school has complete and sole control
over its tournaments and may hold them
any time before the end of the term.

Free medal (shown above) will be presented
to the winners of all your tournaments.

Free draw charts will also be
furnished to every school.

Scholastic Tennis Tournaments
220 East 42 Street, New York 17, N. Y.

Please register my school in the following tournament:

☐ BOYS' SINGLES ☐ GIRLS' SINGLES ☐ DOUBLES

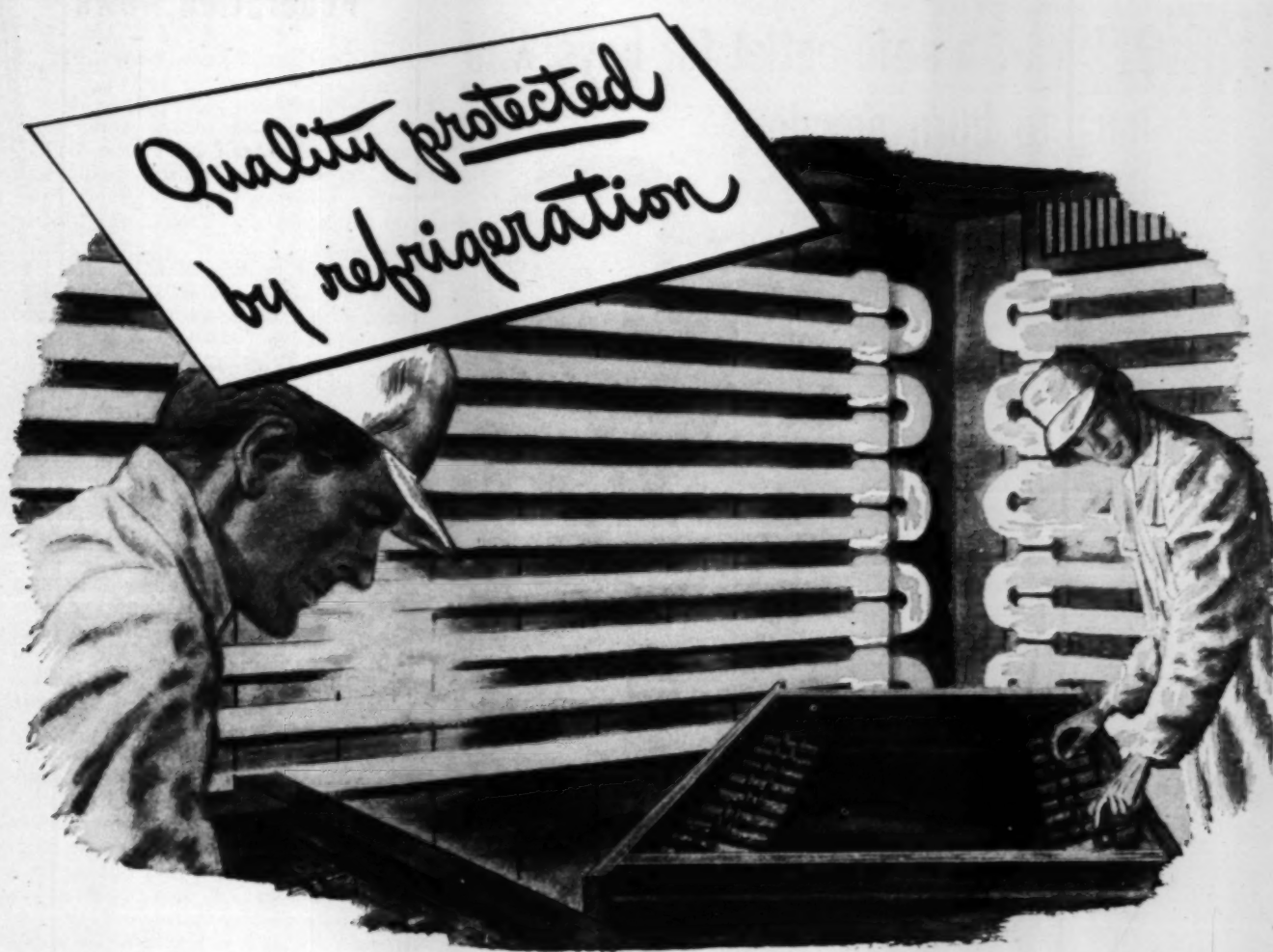
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Armour Strings—Choice of the Champions

Championship—Champions' choice for tournament play.

Junior Championship—Tough, long-wearing gut at a moderate price.

Super Special—The preferred racket gut for all-around use.

Davis Cup—High quality strings for speed in tournaments.

Varsity—The collegians' favorite.

Gold Star—Good quality, reliable gut at a big-value price.

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Armour Tennis Strings

Constant Refrigeration throughout processing, from slaughtering rooms to humidity-controlled drying rooms, protects the top quality gut in Armour Strings from deterioration. Thus, Armour Strings retain greater strength and resiliency—are never lifeless, as are strings made by the old-fashioned process of brining lamb gut. Armour quality control maintains this refrigeration at exactly the correct temperature at *all* times.

The perfection of Armour Strings is the result of six important steps: (1) Getting finest raw materials; (2) Protecting quality by constant refrigeration; (3) Controlling quality by laboratory tests; (4) Precision splitting of gut; (5) An exclusive Armour tanning process; (6) Polishing to exact dimension desired. When you specify Armour Strings, you know you are getting the best because no other manufacturer duplicates the Armour process of perfecting strings.

Quality Controlled  by ARMOUR

"Riflery . . . a safe outlet for boys who long to burn powder"

writes **HOWARD T. EASTON**
of *The Phillips Exeter Academy*
Exeter, N. H.



The Phillips Exeter Academy Junior Rifle Club
Exeter N.H.

Scholastic Publications
220 East 42nd Street
New York 17, N. Y.

Gentlemen—

In the twelve years that there has been a rifle club at The Phillips Exeter Academy, the group has grown from a few interested boys to an annual membership of over seventy. At first, the boys had to supply their own rifles and shot outdoors at targets on improvised firing points in a sanpitt. We now have a five point 100 yard outdoor range and a six point 50 foot indoor range with up-to-date equipment and good lighting. A 16 yard trap range is available for those interested in that type of shooting.

We have discovered that the Rifle Club fills a very definite need in the life of the school in that some boys, who for various reasons cannot excel in other sports and school activities, do achieve an obvious and sometimes startling success in rifle marksmanship. Their attainment then tends to help them overcome the feeling of inferiority which may have overtaken them because of a peculiarity of physique or disposition that sets them apart from the group. Riflery also teaches coordination and selfcontrol for eye and hand which many boys need who are nervously put together.

Many boys yearn to shoot, but are discouraged by careful parents because they realize that there is danger in unsupervised shooting. A rifle club of the type sponsored by the National Rifle Association affords these lads a safe outlet for their longing to burn powder and attain a skill in a manly sport.

It goes almost without saying that the boy who learns to handle firearms with respect and automatic carefulness is a much safer person to have abroad in a world of sport than one who is ignorant of the elementary rules of safety.

Sincerely yours,

Howard T. Easton

Howard T. Easton
Instructor

Remington will help you plan the organization of a rifle club and the building of a range. As a starter, we shall be glad to send you, free, an interesting fully illustrated booklet containing instructions on the operation of a rifle club—including infor-

mation on equipment, marksmanship, target shooting, the construction of rifle ranges, and many other subjects of practical value. Just fill in the coupon and mail it to Rifle Promotion Section, Remington Arms Company, Inc., Bridgeport 2, Conn.



Remington Model 518T bolt action target rifle, completely equipped for the range, and Remington 22's with Klean-bore® non-corrosive priming.

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"If It's Remington—It's Right!"

Rifle Promotion Section
Remington Arms Company, Inc., Bridgeport 2, Conn.
Please send me, free, the Instructor's Manual on the operation of a rifle club.

Name _____
Address _____
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Federation News

(Continued from page 30)

tinued in a series of summer contests.

Several leagues in the upper peninsula of **Michigan** start baseball before school closes in the spring and continue through the summer. **Iowa** and **Minnesota** have taken the lead in expanding a summer program under sponsorship of the schools, and this promises to be one of the most significant sports developments in the last ten years.

Reports on the recent baseball questionnaire indicate that a number of states will encourage a statewide series of contests for the first time this year. **Arkansas** is planning activity along this line.

A recent issue of the **Tennessee** state association bulletin contains the following comment: "Other states report an increase in number of schools playing baseball of from 20% to 300% (Georgia). Of course, Tennessee can't compete with Georgia in number of Governors, nor in such an increase in baseball—but by half trying we ought to get in the 50% class."

In states such as **Illinois**, the rules concerning summer competition have been rather strict and have prohibited participation by school teams during the summer vacation. If any high school boy desired to participate in a summer contest, it was necessary to participate as an unattached individual and not as a representative of his school.

CONSTITUTIONAL AMENDMENT

At the last meeting of the **Illinois** Board of Directors, it was voted to recommend an amendment to the **Illinois** by-laws which would remove this restriction. Such modification would permit a team to participate in the summer while representing its school and under eligibility rules slightly more lenient than those which apply during the time school is in session.

In anticipation of favorable action on this liberalized rule, the larger high schools in the southern part of the state have already voted to retain one or more members of the school athletic staff through the summer months to supervise summer activities, including a baseball series which will extend through June, July and August.

In **New York**, prominent conferences plan to continue their summer baseball program which was started last year and which proved to be popular. Schools participate in a conference schedule which extends through the summer months. The teams are supervised by a member of the school athletic department, who is retained through the summer months, and games are played at times when there is little interference with a player's summer job.

Many states are making use of the baseball films which are made available through the efforts of the Joint Baseball Committee. Two new films are being sent to those states which have indicated a desire to set up machinery for distribution to member schools. Approximately 30 prints are being used for this purpose. These are *World Series of 1946* and *Batting Fundamentals*. Each is a 16 mm. sound film which runs about thirty minutes.

The 1947 edition of the baseball rules books has been shipped. These will be widely distributed and used as the basis for discussion in a series of baseball meetings. The Iowa High School Association is sponsoring an all-day meeting for baseball leaders, which will be followed by a series of district meetings. This baseball series is similar to that held in a number of states in football and basketball.

Basketball Committee expansion: In accordance with action at the annual meeting, the Federation representatives have assisted in expanding the Committee to embrace the Amateur Athletic Union.

Representatives of the A.A.U. will attend the 1947 meeting. The representatives are James E. Coogan, of New Haven, Conn., and Louis G. Wilke, of Bartlesville, Okla., in addition to the assistant to the president, who will have advisory membership.

Under the new organization (if approved), there will be 20 voting members instead of 18 as in the past. An amendment to the Committee constitution has been submitted and adoption of it will complete the reorganization.

New Jersey goes progressive. At a recent meeting of the state athletic association, it was voted to establish a full-time executive staff to administer the affairs of the organization. Walter E. Short, who has been doing most of the work since the establishment of the association, was chosen to fill the position of executive-secretary.

IN SHORT

Mr. Short has been director of health and physical education for the Trenton public schools since 1921. Under his aegis, the state association has grown from a loose organization of high schools to its present closely knit federation. The new secretary and his board are to be congratulated on this progressive step. The member high schools should be greatly benefitted through the increased activities effectuated by the new full-time administrative staff.

Massachusetts: State association leaders have been studying the values of a full-time executive staff, as well as ways and means of effecting the move. It now appears that a full-time office will be organized before the next school year. The present secretary of the state High School Principals' Association is Frederick H. Pierce, of Beverly.

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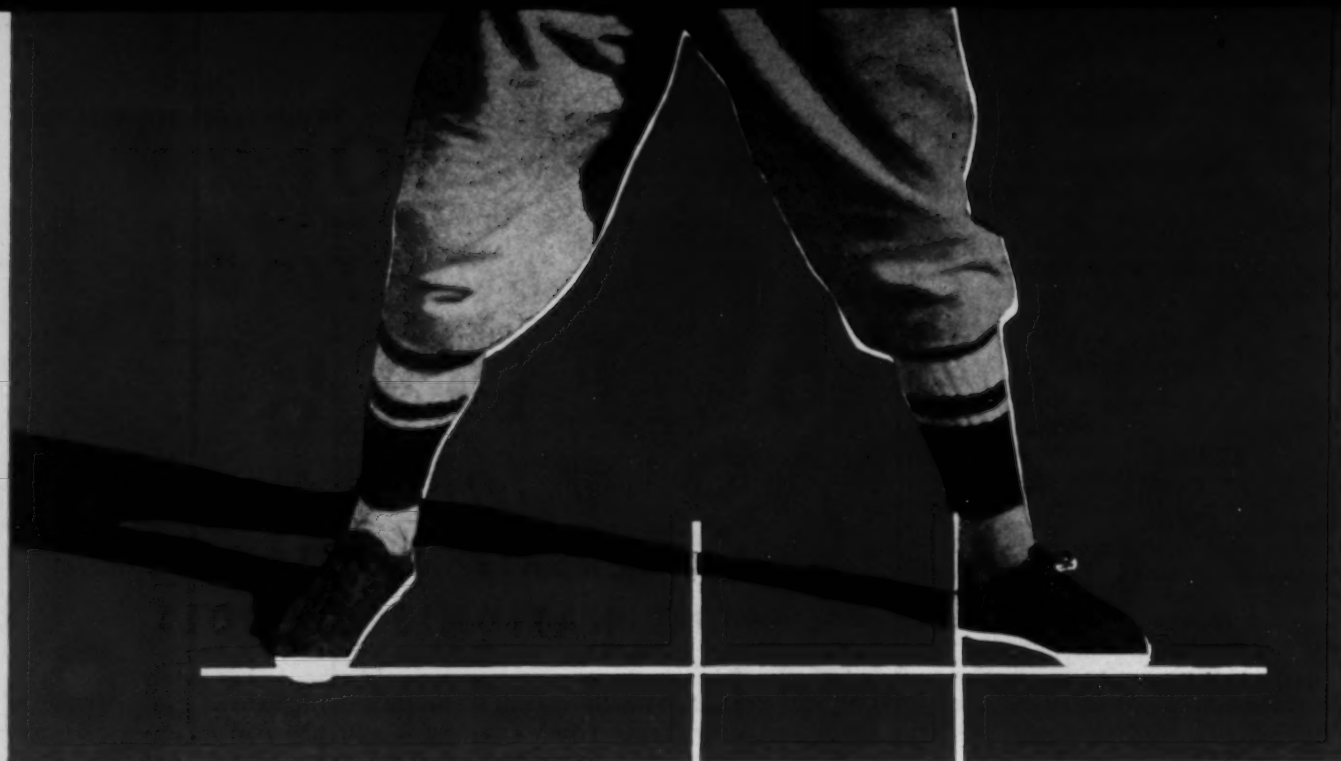
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“You Hit With Your Feet!”

YOU hit with your feet, and the first thing you must watch is: Your stance! There are many people, some quite renowned, who say “Just walk up to the plate, kid; take a natural position and—swing!”

This sounds fine. But like all other patent medicine formulas, it isn't enough. Ty Cobb didn't do it that way. He studied and worked; worked and studied; and practiced until his hands were raw from swinging a bat.

The stance isn't “natural,” any more than the golf stance or the discus-throwing stance or the Rockne-style end-stance, is natural. The baseball stance is definitely artificial.

Note the model in the accompanying illustration. He is straightened up and waiting to hit the ball. His right, or back foot, is at a 90-degree angle; his left, or front foot, is at a 45-degree angle. The angle of his front foot “opens” his position towards the pitcher, and is preferable to having a completely “closed” stance, or one with both feet at 90-degree angles.

The model's stance measures 12 inches from the inside of his back foot to the inside of his front foot. The toes of both feet are on the straight line, as illustrated. Keep that straight line in your mind. It is the key to the success of a successful stride, as we shall prove later.

I know that many major leaguers employ different stances, but that doesn't prove this stance is wrong. This is a good stance, with sufficient width to maintain balance for this particular model.

By placing your feet at these angles, you are in position to place both eyes upon the pitcher. If you use a closed stance, you can train only one eye on the pitcher.

If you use a very “open” stance, with the left foot three or four inches toward third base, you will not be able to hit balls properly to right field. You will hit everything down third base, enabling the defense to position itself accordingly.

If your foot is placed in more towards the plate, you won't be able to hit inside balls. If you step in the bucket, towards third base, you will be an easy victim for the pitcher with a good curve.

I know that Rogers Hornsby stepped into the plate; but he stood at the extreme corner of the batter's box, and he had a very sharp eye, great coordination and quick reflexes. Hornsby utilized a mobile front foot, which means he stepped in the direction the ball was coming, whether inside or outside.

I have seen no player duplicate the Hornsby technique. Incidentally, Hornsby was a choke-hitter and a poor one at that when he came up from the Texas League years ago.

by **BERT V. DUNNE**

*Bert V. Dunne, former Notre Dame and major league baseball star, is one of the greatest teachers of baseball in the land—as people who've seen his methods in *Play Ball, Son!* a two-reel film distributed by Young America Films, will willingly attest. Dunne's analysis of the footwork in the batting swing is reprinted from his book, *Play Ball, Son!* (Serra Publishing Co., San Francisco).*

Miller Huggins made Hornsby grip the bat at the end and swing. I do not know whether Huggins taught Hornsby the mobile front foot. If he did, he contributed something very important to the science of hitting. More likely, Hornsby developed the technique himself.

It is at once, a dangerous and an advantageous technique. If Hornsby misjudged the pitch, he was lost. If he guessed right—and stepped right—he hit the ball hard.

Inasmuch as Hornsby hit .424 in 1924, the modern National League record, and inasmuch as he led the National League in hitting seven times between 1920-1928, he didn't make many mistakes in stepping.

Al Simmons, another great hitter, pulled away from the plate into the bucket, but he compensated for this with a very long bat and certain other body adjustments.

The Hornsby and Simmons styles are not for the boy thirteen years of age or younger. Later on, after

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Mickey Vernon

Washington first baseman smacked out 207 hits and led the A. L. with a .353 Batting Average.



Johnny Hopp

Piled up .334 for the season with the Boston Braves in 1946.



Dominic DiMaggio

Red Sox 1946 World Series star, hit .316 for the 1946 season.



Johnny Pesky

Dynamic Red Sox shortstop batted .335 and led A. L. in hits with 208.



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Boston Braves—holds N. L. record for hitting safely 37 consecutive games in 1945. Hit .309 last year.



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you have mastered the fundamentals, you can experiment, but you would be foolish to do that now. Only stupid people search for the short cut. Place your feet as illustrated—on a straight line!

The model is standing relaxed. His knees are slightly bent. His weight is evenly distributed. He is not conscious of anything except that he is going to step in a straight line.

Hitting is a very complex science. Do not make it any more intricate than it is. Do not try to put all the weight on your back foot and "shift" it forward as you stride. Be loose!

Before we leave the stance, I should say this: If you find it necessary to sharpen the angle of your front foot—in order to hit the ball out in front—do so! But be extremely careful that, in positioning your front foot at a sharper angle towards the pitcher's box, you do not get into the habit of stepping towards third base—if you are a right-handed hitter.

I have found a few boys who didn't have reactions quick enough to keep the front foot at a 45-degree angle. I permitted these boys to sharpen the angle. It seemed to give them more confidence, but it also made them "one-field" hitters. That is, they could hit only to right or left fields, depending on whether they were left- or right-handed hitters.

Some boys can follow a curve ball better if they are permitted to "face" the pitcher. But they can't hit outside balls effectively unless they have very long arms and swing the bat from the end.

Do not adopt a stance that permits you to hit only certain pitches. Use the stance illustrated by the model because it gives you the foot action and plate coverage necessary to hit any ball, curve or fast ball, inside or outside the plate.

The stride is the physical and mechanical instrument that puts you into position to hit the ball. And there are more arguments about it than on any other phase of baseball.

When the pitcher releases the ball, a batter must step and move the bat simultaneously. All hitters must do that, regardless of whether they step a few inches like Joe DiMaggio or two feet like some of the poorer hitters.

On many occasions, I have heard hitters, in a slump, moan, "Oh, if I could only stand there flat-footed, hold the bat steady and just punch at the ball!"

That cannot be done. There never was a hitter who didn't stride at

least a few inches. There never was and never will be a flat-footed hitter who can get any power.

The man who doesn't want to stride is usually not sure of himself. First of all, the stride takes courage because you say, in effect, to the pitcher, "You have thrown the ball. Now I am striding to put myself into position to hit it."

I have seen schoolboy hitters absolutely frozen at the plate. They couldn't stride. They couldn't make the decision to move forward and position the body to hit the ball. When I berated one of them for his lack of decision, he would say, "I just can't move. Tell me when to move!"

I would reply, "I'm sorry. I can't do that. You alone can—and must—make the decision. However, I would prefer to see you step quicker, get in position to hit and depend upon hand-control to do the rest, than I would to see you step too slow, because then you can't hit the ball at all."

I had a truly pathetic case one day. This boy absolutely refused to



Practicing the controlled stride: The player puts his hands on his hips, takes a controlled six-inch stride, and pivots his hips just as he would in batting.

stride. He couldn't do it. Tears would come into his eyes as the ball went by him. Finally, in desperation, I made him start stepping the split-second before the pitcher released the ball.

For days, he missed the ball. Then, presto, he got it. At last, he found the timing necessary to control his hands. To aid him in accomplishing this, I took the bat away from him and made him stride at the plate without a bat in his hand.

The pitcher would throw; the boy would stride and after a while he got the idea. Without the bat in his hand, he could concentrate on striding alone.

As a result of this experiment, I made all our hitters practice striding with their hands on their hips as the model is doing in this illustration.

This model is using a controlled stride of six inches. I said: *controlled!* This means you step the same distance every time! Don't step twelve inches for a slow ball because you have been thrown off-stride and four inches for a fast ball because the ball is coming a little faster.

Step the same distance every time—and work at the exercise illustrated until it becomes a sort of reflex action; until you do it automatically and without thinking about the actual physical movement.

You cannot hit the ball with the bat at all unless you stride properly!

Again, I repeat: The stride puts you into position to hit the ball!

The distance between the feet in this model's stance, as you will recall, was 12 inches. The striding distance is six inches. The final leg spread, then, is 18 inches long.

As the ball left the pitcher's hand, the model stepped, and stiffened his leg. This is to prevent the power from "floating." If you do not stiffen the front leg, you will "float" at the plate.

Do not dissipate your power by hitting against a loose front leg. You lose too much power and you will hit nothing but weak grounders down the infield.

By striding six inches every time, this model will not under-stride or over-stride. Under-striding makes you hit the ball late; over-striding is the greatest vice of all and prohibits you from hitting the ball hard. When you over-stride you are out of position, particularly on curve balls.

Many hitters have failed in the majors, after being sensational in the minors, because they are "over-

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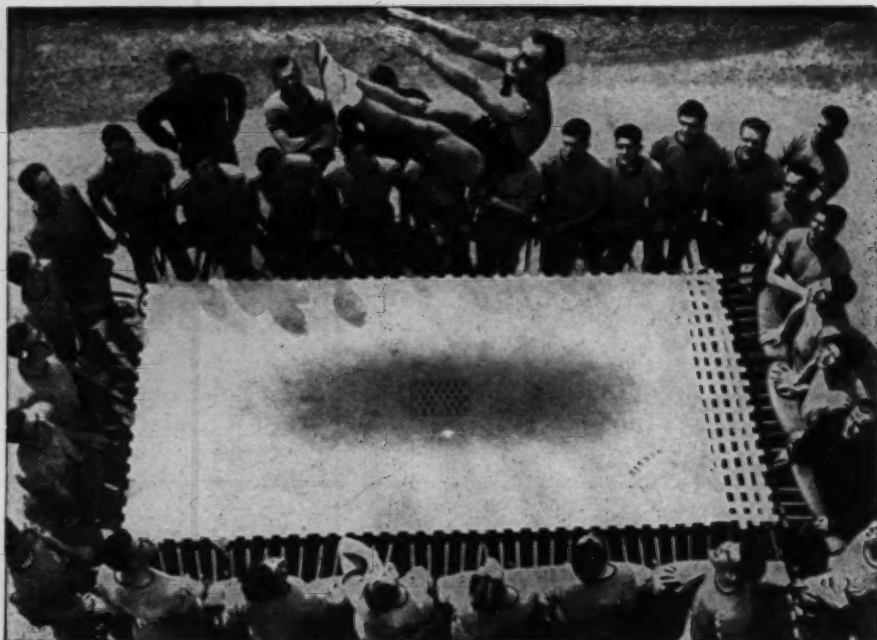
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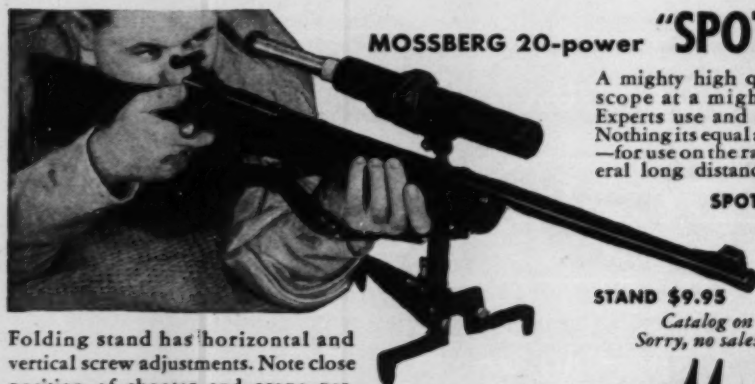
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striders." Big-league pitchers catch their weakness in a hurry and run them out of the league.

If you have a definite stride-length that you always use, you are always in position to hit a fast ball, a curve ball or a change of pace with equal effectiveness.

The front foot ends up at the same 45-degree angle it had in the stance; and the back foot turns completely and is up on the toe. Do not drag the back foot, as you do in throwing. Use the complete foot pivot.

So-called "hitting teachers" have been shouting to their pupils: "Step into the ball!"

I wish this phrase was buried deep, never to harass young hitters psychologically. I give you this as a better phrase: "Step with the ball!"

STEP WITH THE BALL

I have heard grammar school coaches ranting from the bench: "Step into the ball!" and I have always smiled sympathetically. When you "step into the ball" you play the pitcher's game; when you "step with the ball" you are the master of the situation because, in addition to your eyes and hands, you are using your front foot—the striding foot—as a slide-rule to gauge the speed of the pitch.

If the pitcher is extremely fast, you must step quicker than you would if the pitcher was only throwing medium-speed balls. If you can perfect the striding step, so that you step quickly on fast ball pitchers and step slowly on boys without much "swift," you will find that you are "stepping with the speed of the ball." That is the paramount and the necessary thing.

You should know that when a quick strider comes to the plate—a fellow who never varies the speed with which he steps—the opposing coach will instruct the pitcher to "slow up" on this hitter. The result will be a miserable pop-up or a topped ball down the infield.

And, if you use the controlled stride and "step with the ball," you will never be guilty of that greatest hitting crime of all—"hitting off your heels." This means that you start to "draw" your hips back as the ball approaches. This type of hitter reaches out feebly to tap the ball.

The controlled stride "commits" your body to the purpose of swinging the bat properly. Don't be afraid of being hit with the ball. You have enough distance from the plate to "drop" to the ground, if the ball is coming at your head.

In addition to practicing the controlled stride, also practice striding and turning your back suddenly and dropping to the ground. This will enable you to "take" balls in the back instead of on the face, chest or abdomen. A pitch that strikes the front of your body might injure you, but you will be surprised at how little pain you experience when the ball strikes you on the back.

Learn to turn your back to wild pitches—after you stride! I know this is difficult and I know you will wonder about your courage in not staying "in there" at the plate against wild pitchers, but do not despair. Practice the maneuver—and then practice it again!

And under no circumstances should you stick your hand out to stop a pitched ball. This is an illegal move and the umpire can call a strike on you, if he wants to be technical.

Most hitters, who are hit by pitched balls, are responsible themselves. They either crowd the plate illegally, or do not know how to protect themselves—by "dropping"—against a wild pitch.

HITTING BACKGROUND

It is very difficult to hit against a "white-shirt" background. Because of this, most major and minor league parks have a green backdrop in center field in order to permit the hitter to follow the ball.

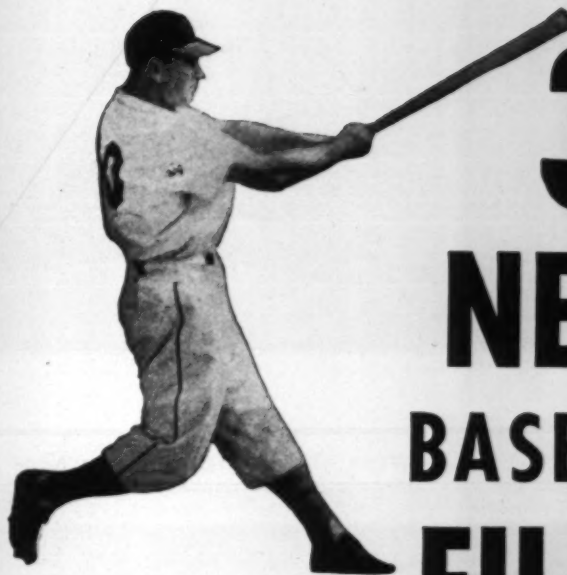
No spectators are permitted to sit in the area covered by this green backdrop.

In schoolboy games, the umpire usually stands behind the pitcher. Tell your hitters to ask him to move to one side so that the pitcher will not be throwing "out of the umpire's clothing." This makes for easier batting.

If the balls-and-strikes umpire will not work behind the catcher, insist that he remove any clothing that is white or gray. Ask him to borrow a green, red or blue jacket, and insist that he stand to one side of the pitcher.

It is almost impossible to hit a ball properly if it is coming out of a background created by an umpire's white or gray shirt.

And, if you notice that the umpire is calling the pitch by looking over the left shoulder of the catcher, step out of the box and tell him to look over the right shoulder of the catcher. The arbiter can't follow outside fast balls or curves on right-handed hitters from a position behind the catcher's left shoulder. The smart umpires do their "looking" from a point behind the backstop's right shoulder.



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Coaches' Corner



Please send all contributions to this column to Scholastic Coach, Coaches' Corner Dept., 220 East 42 St., New York 17, N. Y.

Who says Adolph Rupp is a carpet-bagger who scours the No'th for dribble and hook-pass talent? Collie Small defends the old Kentucky homesteader in a recent issue of the *Sat. Eve. Post*.

Last year's starting five was composed strictly of Kentucky mountaineers: Jack Tingle, of Bedford (pop. 387); Joe Holland, of Benton (pop. 1906); Ralph Beard, of Lewisport (pop. under 200); Ken Rollins, of Barlow (pop. 584); and Wah-Wah Jones, a city slicker from Harlan (pop. 5122).

By way of demonstrating what basketball in the state of Kentucky is like, Collie Small tells how Carr Creek High one year sent its team to the state tourney clad in overalls with the legs cut off! Carr lost the championship in four overtime periods, but were impressive enough to be invited to an invitational tourney in Chicago—whereupon a group of fans chipped in and bought them real, honest-to-goodness basketball uniforms for the trip.

Up until recently, one of the powerful contenders in Kentucky schoolboy circles was Kavanaugh High, a tiny school tucked away in the mountains and run under the watchful eye of Mrs. Kavanaugh, an elderly lady who founded the school. Mrs. Kavanaugh produced winning teams by the sim-

ple expedient of standing under one basket and whacking the backsides of her players whenever they made a mistake.

When Sharpe High won the Kentucky state championship, the officials were momentarily stumped to find there were no telephones in Sharpe to receive the news. So they telephoned to the nearest town, where a man on horseback picked up the news. The rider rode to a swollen river and yelled the word down to a man in a boat, who rowed across the river and told another man on horseback, who obligingly galloped off over the hills to Sharpe, carrying the good news from Lexington.

The demand for tickets to Kentucky U. games is so far out of line with the available facilities that the university has been forced to adopt a system under which only a third of the games are open to any one group of ticket holders.

Alumni Gym seats only 2,800 and there is a student body of some 6,600. Consequently, for 17 home games, one group of students is permitted to see six; another group a second series of six; and the public the remaining five. Even the president of the university can't sneak into games he isn't ticketed for.

Although Rupp is invariably loaded with talent, he is a confirmed worrier. While scouting Texas A. & M. recently, he was downright discouraged to find that the Aggies had such a weak team. (At current writing, the Aggies haven't won a game!) Driving home to Lexington after the game, Rupp tried to badger his assistant coach, Harry Lancaster, into saying that Texas A. & M. should be feared. Lancaster finally conceded, "Well, they handled the ball pretty well before the game."

"Darn right they did!" Rupp beamed happily. "Yes, sir, Harry, they're going to be dangerous."

Should the school baseball coach relay the team's signals or should he delegate the responsibility to a player? That's a question that's puzzled a lot of coaches. But not Jack Coombs, the Duke mastermind. Not since a certain episode some years ago. He tells about it in his book, *Baseball*:

"Several years ago I requested my

freshman coach to use a very simple set of signals that could be given by some player on his squad. This young coach decided that a red-headed boy on his squad would be the proper fellow to flash the signals because he was easy to see. The coach decided that the red-head should take his cap off for the steal signal, and hold his cap in his left hand for the hit-and-run sign.

"I was eager to see how these signals would work, so I attended one of the freshman's big games. The game proved to be a pitcher's battle. The score in the sixth inning was 2-2, when Duke burst out with the most unorthodox baseball I have ever seen. The first batter was hit by a pitched ball, then stole second, third and home on three successive pitches.

"The next batter singled, stole second on the first ball pitched, stole third on the second ball, and scored on a long fly. With two out, the fifth batter reached first on an error. He stole second base on the first ball pitched, then third on the next ball.

"I was frantic. I rushed to the players' bench to find the reason for these bizarre tactics. The reason was simple—the red-headed boy had taken off his cap and forgotten to put it back on his head.

"Since that time I have asked my associates to give the signals themselves."

Our old pal, W. Harold O'Connor, track coach at Concord (Mass.) High, puts in a plug for his mercury-footed



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middle-distance star, Val Muscato. Val astonished the rail birds up his way by running the 600 in 1:14.6 at the state meet at the Boston Garden. This feat, performed on an 11-lap board track, clipped two seconds off the old mark. Coach O'Connor believes it may constitute a new national schoolboy record (on boards).

What makes Val's record even more noteworthy is the fact that Concord High has no board track to practice on. The boys practice in the corridors and on a small unbanked armory floor. (Two weeks after receiving Coach O'Connor's communique, we saw Val cop the national high school 440 indoor title in 51.8.)

(Flash! A last-minute communique from Coach O'Connor: That 1:14.6 mark in the 600 is already off the books. At the Bowdoin Interscholastics, Muscato knocked off a 600 in 1:13.8. Some flyer that Muscato!)

"During the basketball season," writes Coach Paul Brown, of Washington Irving Junior High, San Antonio, "we were playing a local rival which had an unusually tall player who was scoring plenty of points. We also had a tall boy, but he was a substitute. While a fair player, he was very dumb.

"I called this boy over and gave him a long lecture on how to guard the altitudinous rival. I told him no matter what happened he was to stick to this man. He went into the game and obeyed instructions to the letter. In fact he did such a swell job of guarding that the rival coach pulled his big man.

"When play was resumed my boy came over to the bench and said, 'Coach, I haven't anything to do. My man is sitting there on the bench.' So I took him out. He sat still for a while. Suddenly he leaped up and started to pull off his warm-ups. 'Coach!' he yelled at me. 'HE's going back. Must I get him?' He did."

Bill "Lucky" Vinson, of Fife High, Tacoma, Wash., tells us we left too much to the reader's imagination in that story of the infirmity poker game and the winning hand of five enemas. "I heard Ray Eliot tell that story last summer and he concluded with 'I've got five enemas—a royal flush.'" We agree, Bill, that's a much more explosive finish.

"Old-timers out here in the Northwest," continues Bill, "love to spin stories about Bob Fitzke, the former Idaho all-around athlete. One of Fitzke's early coaching jobs was at Hoquiam, Wash., where he was assisted by Bill Nollan. On the Saturday of the big Hoquiam-Montesano football game, Nollan and the players showed up early. But no Fitzke.

"The opponents and the officials soon arrived and started dressing. So Nollan had his boys suit up and get out on the field. Still no Fitzke. The

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game started—without the head coach on the bench. At the half, the teams repaired to the dressing rooms. And that's when Fitzke finally arrived.

"Gosh, Bill," he gasped to Nollan, "It was lucky you were here. I got to putting in wood at home and forgot all about this dog-gone game!"

What's the matter with those officials down Florida way? First, Eddie Boell of Eustis weighed in with a sorry report. And now here's another from Charles Kruse, of St. Petersburg. He tells us "a referee at Punta Gorda nullified three touchdowns by Farragut Academy because the ball was not downed! The ref also called the half without the sanction of the time-keeper when Farragut appeared certain to score. In the second half he allowed the Punta Gorda coach to go on the field and get into the huddle with his team. I have 50 witnesses to verify this."

Jeeppers! Could that ref have been a homer?

Pugilists—there's a fine, esthetic, intellectual genre for you. The night Tony Janiro beat Monty Pignatore he was climbing out of the ring when a spectator grabbed his hand and congratulated him on his good fight. While not a ringside regular, the spectator was pretty well known to the crowd. A guy named Harry Truman.

Back in the dressing room, Janiro asked his manager: "Who was the guy shook hands with me out there?"

"That," grinned the manager, "was the Vice-President."

Janiro's baby blue eyes widened. "The vice-president of Madison Square Garden? Geez!"

Here's the neatest trick of the century. It seems Mel Ott was demonstrating the art of sliding to his rookies. He pointed out that as long as the legs and spikes were up, there was little danger of a broken leg or ankle.

Ott recalled that he was a dreadful slider on his first appearance in a training camp, and practiced in his hotel room, sliding on to the bed. "I had to keep my legs up to get up on that bed," he declared. "It was perfect practice."

Can you see Mel brushing his teeth, slipping a pair of sliding pads under his pajamas, taking a running start from the bath-room, and zooming over the linoleum into a nice five-point landing under the bed-sheets?

Open the equipment doors, Richard. Marty Gilman is back in town (Gilman, Conn.)! Remember Marty? He's the football-field-equipment Edison who invented all those wonderful practice aids: Comeback, Standback, Fightback, Pneuback, etc. When Uncle Sam called, Marty closed his factory with less than five days notice and became one of the first men to join



the Hamilton training program. He stayed in the Navy five years, rising to the rank of Lieutenant-Commander. And what a job he did!

He designed and developed the standard Seapack luggage, which saved the Navy and Navy personnel about six and a half million dollars. What's more it was used by two presidents! President Truman purchased a set for himself and later presented a set to both Churchill and Stalin at Potsdam. The word Seapack became the first trademark ever registered by the U.S. Navy.

Among Marty's other inventive contributions were the "4-Seas" collapsible cardboard clothing containers; the Aero-wheels for sports programs; the plastic pistol for hand-to-hand instruction; the combination flameproof and flotation mats for athletic activities aboard ship, damage control and life saving; and the pre-fabricated swimming training tank and rubber kick float for swimming instruction.

So welcome home, Marty. It's nice to have you back. Football needs guys like you around.

While listening to the Lesnevich-Fox brawl the other week, we heard the announcer describe Billy Fox's style like this: "Billy shuffles around the ring, like Joe Louis. He doesn't dance on his toes, he sort of bounces." This makes Billy the first shuffling-bouncer in the whole sordid history of the craft.

The announcer spoke glowingly of the two clean-cut, young American gladiators and of the noble art of professional boxing—which actually is about as noble as Benedict Arnold and Al Capone. He made the "young American gladiators" sound like a combination of the fun-loving Rover boys and Abraham Lincoln. Well, that's one way of making a buck—and you're welcome to it.

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APRIL	"Tobacco, Alcohol, Drugs"
MAY	"Hygiene of Special Organs"
JUNE	"Mental Hygiene"

by DR. HENRY F. DONN

IN many circles, smoking and drinking has become an accepted part of group conduct. No longer does the public look askance at women smokers, nor does it seem concerned as to whether or not the habit is practiced by young people. Even the taking of habit-forming drugs, although not as common as drinking and smoking, is not a rarity among adolescents.

The advertising efforts of the liquor and tobacco interests seem to have succeeded beyond all expectations in trying to make the individual feel out of place socially without a cigarette in one hand and a cocktail in the other.

Teachers too have become victims of this propaganda. They find it difficult to teach something they themselves do not fully understand or believe. They are not too enthusiastic about recommending health habits which they themselves do not practice.

The whole subject has been so obscured by the unscientific and frightening claims of the moralist on one hand and the genial sales-making indorsements on the other, that it is difficult to sift truth from fiction.

The forces of science are making an effort to obtain unbiased information. A few studies have been completed and some conclusions drawn.

The high school boy is intelligent enough to differentiate between emotional exhortation and scientific facts. Stick to the facts; your material may be useful not only to the boy but to members of his family, as well.

The 1941 report of the Joint Committee on Health Problems in Education of the N.E.A. and the A.M.A. recommends that the facts taught should be graded to meet the

This is the seventh of a series of articles on the constituents of a personal hygiene course for high school boys, by Dr. Henry F. Donn, physical education instructor and basketball coach at Weequahic High School, Newark, N. J.

interest and psychological development of the pupils.

Motivation may be given through accenting the importance of physical fitness in sports, efficiency in play and work, vigorous health, safety, service to others, and character qualities such as self-control, kindness, sportsmanship, self-reliance, duty, reliability, truth, good workmanship, cooperation and loyalty.

HABIT OBJECTIVES

1. Avoid the use of habit-forming drugs, alcoholic beverages, and tobacco in all forms.
2. Keep away from liquid refreshments unless you know their contents.

3. Do not accept pills, powders, candy or drinks from any strangers.

4. Partake of drug-containing medicines only upon the advice of a reputable physician.

5. Obey the law with respect to the sale or purchase of alcoholic drinks, tobacco and habit-forming drugs.

6. Avoid habits which would harm you and others.

7. Make an individual choice of conduct relative to drinking and smoking based upon what you believe to be right guided by the available scientific data.

8. Do not encourage friends to take dares relative to drinking, smoking or the taking of drugs.

9. Do not drive in a car that is driven by a person under the influence of liquor.

10. Do not fall prey to misleading advertisements that encourage people to drink and smoke.

11. Avoid the companionship of boys and girls who depend on smoking and drinking and perhaps drugs to "liven-up things."

12. Do not try, just for the sake of experimentation, any habit-forming drugs.

ATTITUDE OBJECTIVES

1. Appreciate the necessity of waiting until physiologically mature to decide whether or not to smoke or partake of alcoholic beverages.

2. Realize that smoking, drinking and the taking of habit-forming drugs have no place in the life of a normal boy.

3. Realize that drugs are used by unfortunate people who are quickly enslaved by them because of their effects on the human body.

4. Appreciate the necessity of
(Continued on page 50)



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having a clear brain and steady nerves in keeping pace with modern living.

5. Appreciate the strength of character necessary to stick to abstinence despite other people's attempts to ridicule or otherwise unduly influence you to change.

6. Respect the decision of others on matters relating to smoking and drinking.

7. Desire to do only those things which make your body strong and your mind clear.

KNOWLEDGE OBJECTIVES

1. Know that alcohol is a habit-forming drug.

2. Know why people drink, smoke or take drugs.

3. Know the content of tobacco, its harmful effects on the adolescent and the results of scientific smoking-studies.

4. Know the harmful effects of alcohol on the body and to the daily routine of living.

5. Know the common harmful drugs.

6. Know where to obtain reliable, scientific, unbiased information relative to alcohol education.

7. Understand that while some people seem to use alcohol with no apparent harm, untold thousands have been ruined by it.

8. Recognize the individual and community advantages resulting from your abstinence from smoking and drinking.

GENERAL INFORMATION ON ALCOHOL

1. The use of alcohol by normal persons of any age, has not been shown to improve health.

2. Individuals differ widely in the amount of alcohol they can drink. Some persons are especially susceptible to alcohol.

3. Tests show that even moderate drinking decreases accuracy and skill.

4. When alcohol is used excessively, it shortens life and increases mortality.

5. A person who becomes intoxicated, loses control of his physical and mental faculties.

6. Moderate users of alcohol who have sufficient will-power can stop drinking, but self-cure is almost impossible for chronic alcoholics.

7. The chronic alcoholic is a sick person in need of medical care.

8. Most young people drink from curiosity.

9. Alcohol has no nutritive value; it is not a stimulant but a depressant.

10. Drinking lowers inhibitions.

11. The Yale School of Alcoholic Studies reports:

- (a) Psychiatrists recognize only one mental disorder directly attributable to alcoholism—delirium tremens.
- (b) Alcohol weakens the body but seldom damages it permanently. Aside from certain remedial ailments such as temporarily enlarged liver, vitamin-deficiency diseases like pellagra; there are few disorders traceable to drinking.
- (c) The chief personal and social danger in the unwise use of alcohol is not drunkenness, disease, or premature death, but the disturbance of conduct and inferiority of performance in the ordinary situations of life.

12. Industrial and business concerns avoid employing persons who are alcoholics.

13. Athletic coaches realizing that alcohol decreases reaction time and is detrimental to the good health of the growing boy, condemn its use in any form by the adolescent.

14. Laws of the state and of the U.S. regulate the commercial traffic in alcoholic beverages.

15. Agencies that aid in the problem of alcoholics are:

- (a) Alcoholics Anonymous, P. O. Box 459, Grand Central Annex, New York 17, N.Y., provides confidential information for the alcoholic in need of help.
- (b) National Committee for Education on Alcoholism, Room 447, N.Y., Academy of Medicine Building, 2 East 103rd St., New York 29, N.Y., provides information for people who wish to arrange for lectures, programs, campaigns and newspaper publicity in their communities.
- (c) Yale School of Alcohol Studies, 4 Hill House Avenue, New Haven, Conn., has information of a technical nature for professional people interested in the alcohol problem.
- (d) Research Council on Problems of Alcohol, 60 E. 42nd St., New York 17, N.Y., has information on different types of treatment and lists of recommended literature.

GENERAL INFORMATION ON SMOKING

- 1. Modern science differs as to the effects of tobacco on the body.
- 2. Smoking to excess is injuri-

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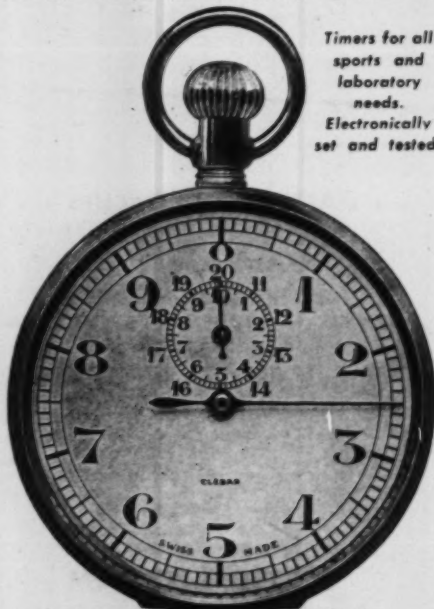
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ous to health, but it is difficult to define what is excessive.

3. There is no general agreement as to the effect of tobacco upon mental efficiency.

4. Susceptibility to the influence of tobacco varies considerably in different individuals.

5. The pleasure of smoking is largely mental.

6. Addiction to tobacco occurs rapidly, and a person becomes increasingly dependent upon its use to keep from feeling nervous.

7. Dr. Raymond Pearl, Professor of Biology at Johns Hopkins University, states that while inheritance is a major factor in achievement of great longevity, life tables indicate that smoking is associated with a definite impairment of long-life chances.

8. Dr. Clinton H. Thienes, Professor of Pharmacology at the University of Southern California, states there is much conflicting evidence as to the effects of smoking on the nerves, digestive glands and the brain. His studies indicate that effects of nicotine from smoking do not interfere with growth of bones or cause degeneration of blood vessels. The experiments were confined to nicotine effects. Tobacco smoke also contains tar, carbon monoxide and pyridine.

9. The experiments conducted by Dr. J. G. Schnedorf and Professor A. C. Ivy at Northwestern University Medical School provide the first definite data that excessive cigarette smoking provokes vomiting and diarrhea, while in any particular person the functioning of one of the bodily systems may be affected more than another. The experiments further indicate that the hunger contractions of the stomach in man cease after the first few puffs of smoke. The hunger contractions do not recur for from 15-60 minutes after cessation of smoking. (Important to adolescents.)

GENERAL INFORMATION ON DRUGS

1. The use of pain-killing drugs, sleeping pills, powders and tablets, is increasing.

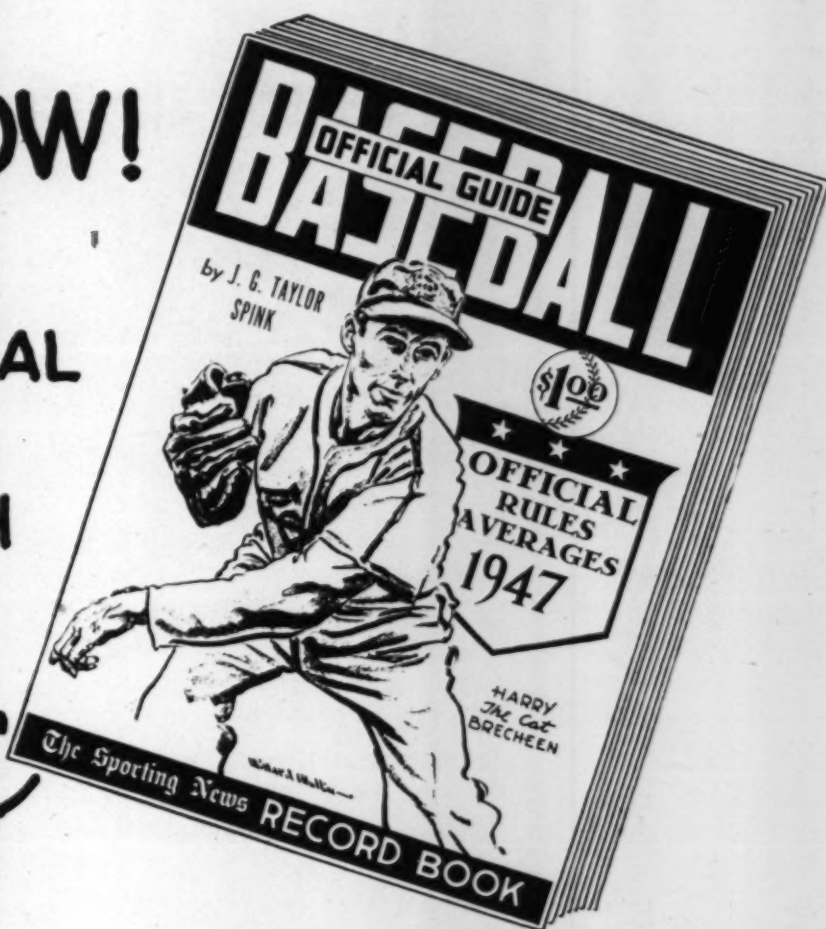
2. Family medicine cabinets should contain only recognized, simple drugs (not mixtures) that are safe to use. Only a relatively few drugs are safe for the home medicine chest. Your physician will advise you which these are.

3. Proprietary headache medicines merely mask the symptoms. Consult your physician on recurrent headaches.

4. Marihuana, morphine, cocaine, codeine, and heroin, should never

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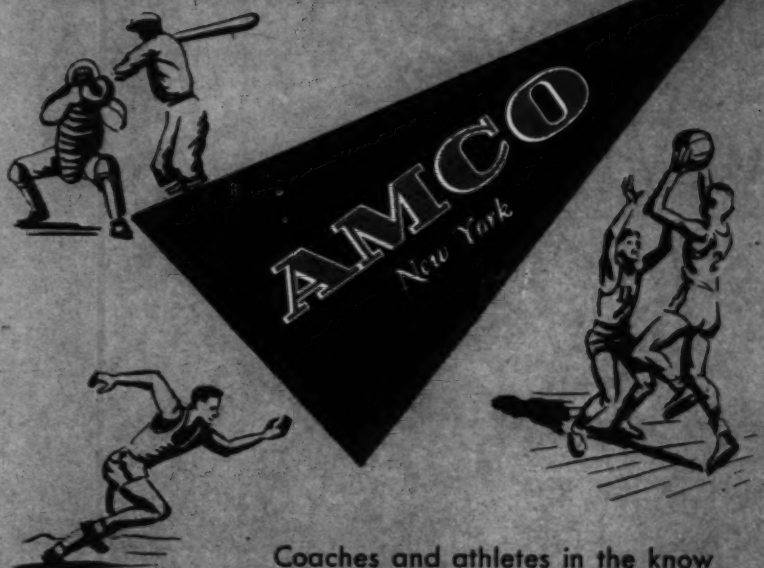
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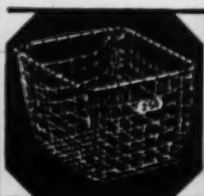
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be taken unless prescribed by a physician.

5. Relatively few persons have become drug addicts through use of medicines for relief of pain.

6. The U.S. is the only country in the world which, through its Public Health Service, takes public responsibility for its drug addicts.

7. All drug habits are far easier to avoid than to break.

8. Although caffeine is a strong stimulant, there is so little of it in a cup of coffee or tea that its effect is usually mild.

9. Prolonged use of marihuana (reefers) commonly produces mental deterioration and insanity.

10. Aspirin, Alka-Seltzer, Anacine, Midol, Bromo-Seltzer, Laxative Bromo-Quinine, Cascarets and many other proprietary medicines should be taken only upon the advice of a reputable physician.

SUGGESTED ACTIVITIES

1. Have a student committee report on the local drug laws, alcohol sales law, and the sale of tobacco products.

2. Have a student committee write to the various research centers to obtain any new developments in research in this field.

3. Have a student interview 25 adults to obtain their reason for smoking or drinking.

4. Have a student canvas the local newspapers and magazines to bring in for comment the advertisements relative to smoking, drinking and proprietary medicines.

5. Have a student report on the sociological effects of excessive drinking and smoking.

6. Have a student committee interview each student in the class to record when they smoked for the first time, what was the condition under which they had their first smoke, whether or not they are continuing with the habit, if not, why not; and what are the desires of their parents relative to this practice. Have this done also with respect to drinking alcoholic beverages.

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5. Steinhaus, A. H., and Grunderman, F. M. Tobacco and Health. Association Press, N. Y., 1941.

NEW BOOKS

GRAPHIC BASEBALL-SOFTBALL SCORE BOOK. (No. 1 and No. 2). Park Ridge, Ill.: The Graphic Score Book Co. See review for prices.

LOOKING for a good baseball-softball scorebook? Try the Graphic model. It's a pip, meeting every requirement for accurately scoring the performance of each player and team.

Each score sheet is arranged to carry the following information: players' names (12), positions, 12 innings of play, complete individual batting and fielding summaries, team summaries, and scoring symbols.

In addition to this, the book provides special sections for keeping permanent records of the batting and fielding achievements of each player through a 35-game season; the records of each pitcher; a season round-up of game scores; and round-robin records for league play.

The scorebook comes in two sizes: No. 1 (9¼ x 12 in.), 80 pages, 37 games, selling for \$1.25; and No. 2 (6 x 9¼ in.), 64 pages, 27 games, selling for 75¢.

The books are end-bound in heavy board covers with mechanical metal binding so that all pages lie flat when not in use.

HEALTH AND BODY BUILDING. By Frank M. Wheat and Elizabeth T. Fitzpatrick. Pp. 517. Illustrated—photographs and drawings. New York: American Book Co. \$2.08.

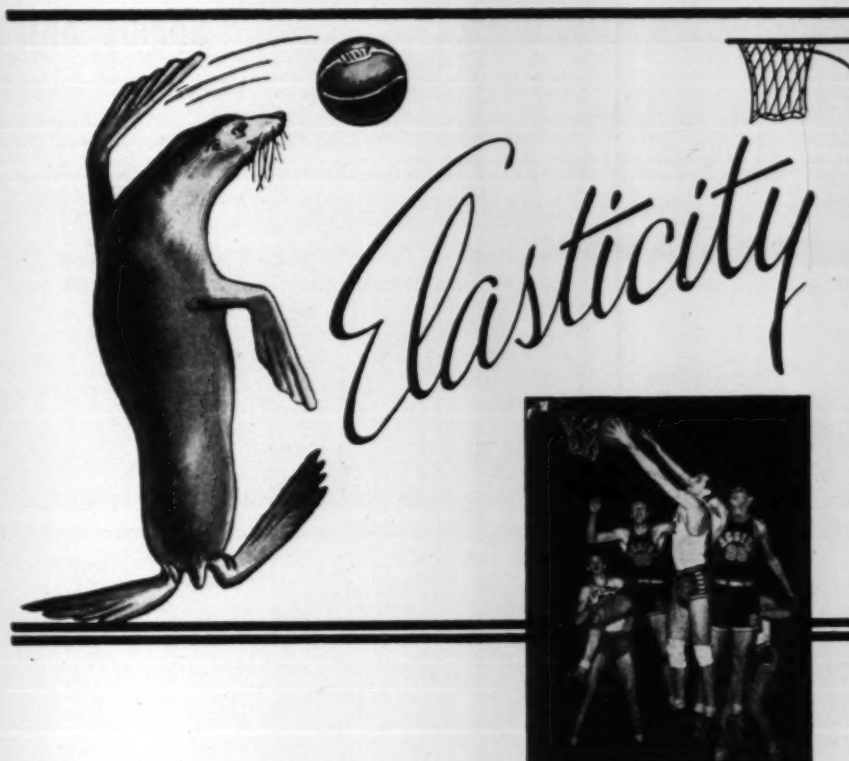
WHILE organized as a high school text (for courses related to the teaching of health), this book can be put to fine use as a classroom guide by health and hygiene instructors.

It is very simply and clearly written, and contains a wealth of the latest scientific information on ten main units:

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2. Intelligent planning to improve personal appearance.
3. Nutrition.
4. Function of body parts.
5. Rest, sleep and exercise.
6. Special senses.
7. Stimulants and narcotics.
8. Personality, mental health and behavior.
9. Home, school and community aid in safeguarding health.
10. Promotion of welfare of all.

Each chapter is concluded with a series of "interesting things to do" and "questions to answer." A special appendix contains a number of valuable charts on the fuel value of certain foods and their chemical elements.

All this material has been successfully utilized in high school classrooms by the authors, both of whom are prominent administrators.



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Sprint and Broad Jump

(Continued from page 8)

ing. He then extends both legs, inclines the trunk forward, and swings both arms backward, then rapidly shoots them forward.

Landing. There are few basic distinctions in the landing. The jumper extends the legs as far forward as possible, tries to maintain the heels on the same line, and aims to keep the center of weight in such relationship to the feet that he will not fall backward. Jesse Owens' legs contacted the ground at an angle of 29 degrees on one good jump.

If the center of body weight is too far forward, the athlete will not be able to get maximum leg reach. And if the center of weight is too far backward, he may fall on his haunches and lose distance.

In any style of jump the arms are vigorously employed as an aid in retaining balance.

THE SPRINTS

THE 1947 indoor track season has proven that many of the sprinters classed as old-timers have been able to recapture the speed they exhibited before serving in the armed forces.

Their winning times compare favorably with those they established before the war. Maybe sprinting is a young man's game. But athletes like Barney Ewell are still winning races.

May we look forward to the meteoric rise of a new flash—the way Frank Wykoff of Glendale (Cal.) High School burst into the limelight back in the late 1920's? It would seem so. Who will it be?

Is Charlie "Schoolboy" Parker, the youthful Texan who showed such wonderful promise a few years back, ready to resume his sprinting career after a hitch in the Army?

Unlike some athletes, Parker is reported to have kept in shape while in service. He is supposed to have run 100 meters in 10.3 in the Meiji Stadium in Tokyo.

Will Bill Mathis, of Washington, D.C., and the University of Illinois, better the impressive set of performances he turned in during the 1946 season?

No doubt there are youngsters still in the Army, Navy and Marines who, because of their enlistment, have been unable to match strides with the older athletes. But now that the Selective Service Law has

been laid away, we may expect to see more young sprinters in the big races.

We believe that most coaches have found the returning servicemen less of a problem than was anticipated. The pessimists contended that the veteran would not return to his training tasks with the old-time gusto and enthusiasm. They believed he would not have the ambition for technical drills, the desire to pay the price, or the patience to perfect the skills so necessary for success.

Fortunately the one-time service man, by-and-large, has not evidenced these negative qualities.

In common with the high school athlete, the dischargée who expects to run a hundred yards has these things to consider:

1. Basic physical condition;
2. Suitable equipment;
3. The knack of responding to the pistol shot;
4. The ability to swing into the full-speed strides;
5. The development of stamina sufficient for the duration of the race.

Basic physical condition is attained by means of a series of exercises which start with moderate intensity and duration and proceed until they are both vigorous and prolonged.

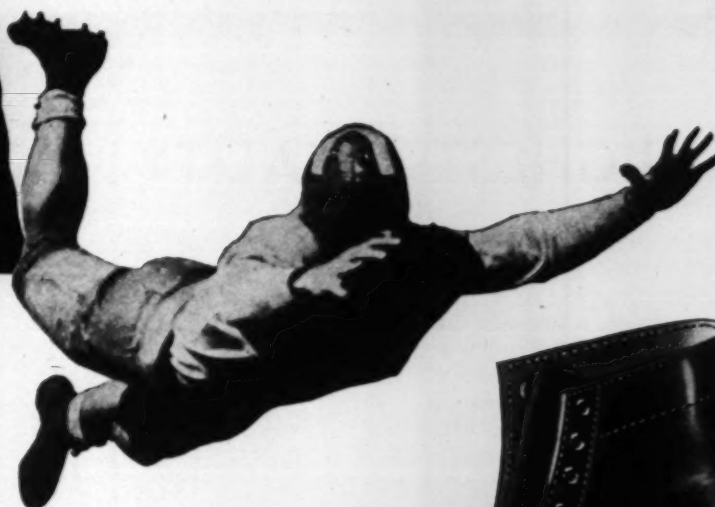
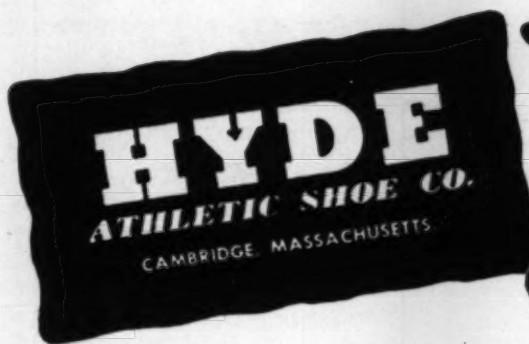
Alternate jogging, walking, and bounding, supplemented with two or three minutes of body-building exercises, should suffice for the first week. Soft-soled shoes rather than running spikes are frequently recommended in early season.

There is fairly general agreement that exercises which gradually stretch the muscles and tendons are very valuable in preventing "pulled" muscles. The heat lamp, massage, and the active physical warm-up are indispensable items in warding off injury.

The athlete must become a self-diagnostician to the extent that he can determine the correct amount of warm-up so that he may compete at the crest of his physical curve.

After the first week or so, the intensity and speed of the practice is increased so that the athlete becomes accustomed to applying full driving power. He may then make use of regulation sprinting equipment.

Suitable equipment. Little need be said of the sprinter's clothing



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except that it fits him and presents a good appearance.

The chief item is the sprinting shoe, and this has been a problem for a number of years because of the scarcity of both specially forged steel spikes and leather.

The average priced sprinting shoe was made of calf leather; a slightly higher priced shoe was made of "blue-back" kangaroo leather; and the top grade was made of "yellow-back" kangaroo leather.

We hear stories to the effect that some sprinters, from Jamaica if we recall correctly, are making use of a sprint shoe made of alligator skin. The soles of these shoes are equipped with four spikes rather than with the traditional six, and the toe is square instead of round.

Our experience with a sample pair before the war was favorable.

After a week or ten days in spiked shoes, the sprinter should be ready for practice on starting.

The knack of responding to the pistol shot. The student of the game will experiment carefully with the mechanics of the start. He will try out the generally accepted types of foot-spacing and adopt the one suitable to his height, length of legs, and length of arms.

Whether he uses holes dug in the ground or starting blocks placed on top of the track, he should know the measurement in inches of his most effective starting position.

Here are the measurements adopted by a sprinter six feet tall, making use of the "bunch" start:

1. Left starting block to the scratch line, 19 inches.
2. Right starting block to the scratch line, 29 inches.
3. Center of left heel to center of right heel, 8 inches.

Foot spacing, then, is a highly individual adjustment, and is solved only after repeated trials.

There is a variance in the length of time a sprinter is held in the "Set" position, by the official wielding the pistol. In indoor sprints especially, where the getaway determines the winner, some athletes attempt to make their departure coincide with the report of the pistol.

The result is that either the athletes break before the pistol and are charged with a false start, or one or more contestants are in motion when the pistol is fired. In the latter case, the start cannot be considered equitable.

Laboratory experiments indicate that a holding time of from 1.4 to 1.6 seconds after hip steadiness to the instant of the pistol shot is the most efficient. Further tests reveal that if the athlete is held in the



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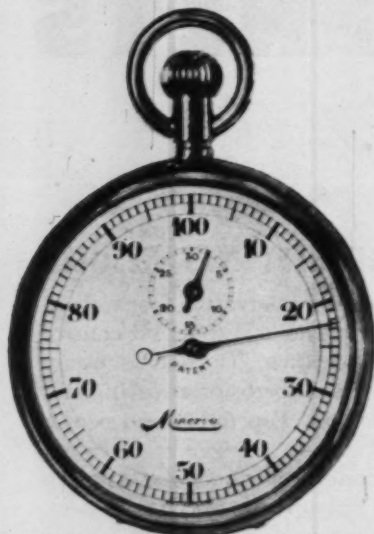
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"Set" position two seconds or more, he has passed the peak of efficiency.

Again, when the pistol is fired less than one second after hip steadiness, the reaction is not so rapid, because the athlete has not yet reached the peak of attention.

The solution apparently rests jointly with the coaches and pistol firers, who may insist on a holding period (in the "Set" position) between the two extremes.

"Shall the sprinter in the 'Set' position concentrate on the sound of the pistol or on the act of starting?"

Psychologists report that the athlete possessing the fastest start is the one who concentrates on the act of starting. He ceases breathing from the command "Get Set" to the sound of the pistol. The driving force is unleashed immediately upon hearing the pistol shot.

The ability to swing into full-speed strides. Shortly after the sound of the pistol and the exerting of force against the starting blocks, the sprinter pumps the arms vigorously.

The strides are gradually lengthened and the trunk is brought from the extreme lean to a position more nearly upright. The knees are lifted high enough to permit extension of the lower leg, thus adding length to the stride.

"At what stage in the race does a

champion sprinter attain full-speed striding form?" A motion-picture study shows that there is a fair degree of uniformity among champions. At one extreme, nine strides are required by a top-ranking athlete. At the other extreme, only six strides are needed.

The sprinter is considered to be in full-speed stride whenever the trunk lean reaches a constant angle, and when the length of stride ceases increasing and becomes uniform in measurement.

The average angle of trunk lean is found to be 25 degrees.

The development of stamina. From the above discussion, it is apparent that the athlete is at about the 15-yard mark at the end of nine strides. That means 85 yards remain. This distance is covered in 40 strides by the average sprinter.

By repeated trials, he must build up his ability to continue the race at sustained effort. Through practice he learns to relax those muscles which are not called upon in the driving phase. Daily drills have made it possible to improve the rate of elimination of waste products, which means insurance against "tying-up" or muscular cramps.

The intelligent hundred-yard man will not switch his line of vision to his competitors on either side, but will look straight ahead in his drive down the stretch.

Mechanics of the Pole Vault

(Continued from page 18)

the potentialities (energy-height) for this one set of conditions. As soon as the vaulter releases the pole, he becomes a simple projected body.

Using evidence from the numerous individual analyses as a typical example, we assume that our vaulter projects his body away from the pole at an angle of 60° from the horizontal, with an initial velocity of 6 feet per second. Many vaulters clear at higher velocities. The height he will achieve is therefore determined by the formula:

$$H = \frac{(v \cos)^2}{2g}$$

where g is gravity and v the velocity of the body.

Although the heavier vaulter possesses, thanks to his added weight, a greater Total Energy, he also uses a proportionately greater amount to lift the heavier body to the bar. He will have to do more work in the pull-up phase of the vault.

The heavier vaulter will, in all

probabilities, have more muscle to do this work. Hence, it is not sufficient to state that a lighter vaulter is more efficient. If a light vaulter possesses a relatively powerful frame for his overall weight, he has a definite advantage.

Many top-notch vaulters have found that dropping their body weight from 5 to 10 pounds has increased their efficiency proportionally simply because the loss in centrifugal force (swing energy) was compensated for by more efficiency in the pull up. Warmerdam dropped his weight from 175 to 165 pounds and attributed some of his success to this factor.

In his concluding installment next month, Mr. Ganslen will offer a number of observations on the actual techniques of the vault—coaching theories which have never heretofore seen print.

¹²Harris: *ibid.*

¹³Worthington, A. M.: *Dynamics of Rotation* (London: Longmans Green and Company, 1916), p. 86-87.

¹⁴Poorman, A. P.: *Applied Mechanics* (New York: McGraw-Hill Book Company, Inc., 1938), p. 171.



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BETHANY COLLEGE—Bethany, W. Va. Aug. 11-15. John J. Knight, director. Courses: Football, Basketball. Staff: To be announced. Tuition: \$15 (+ \$13.50 for room and board).

EASTERN PENNA. COACHES ASSN.—East Stroudsburg, Pa. June 23-28. Marty Baldwin, director. Courses: Football, Basketball. Staff: Dick Harlow, Herman Hickman, Frank Keaney, J. Birney Crum, C. P. "Nenie" Campbell. Tuition: \$30 (includes room and board).

EDINBORO COACHING SCHOOL—Edinboro, Pa. Aug. 12-15. Arthur McComb, director. Course: Football. Staff: Stu Holcomb, Tom Davies. Tuition: \$22.50 (includes room and board).

FREMONT COACHING SCHOOL—Fremont, Mich. Aug. 25-27. Lawrence J. Gotschall, director. Courses: Football, Basketball, Training. Staff: Adolph Rupp, Buck Read, Forest England, Jack Hepinstol, others. Tuition: Basketball, \$6.50; Football, \$4; Both, \$10.

GEORGIA COACHES ASSN.—Atlanta, Ga. Aug. 14-20. Dwight Keith, director. Courses: Football, Basketball, Training. Staff: Paul Bryant, Clair Bee, J. B. Whitworth, Chick Shiver, Selby Buck, Dickie Butler, Drane Watson, Cliff Kimsey, Jeff West, Eddie Wojewski. Tuition: For members—Football, \$4; Basketball, \$5; Both, \$7.50. For others—Football, \$10; Basketball, \$10; Both, \$15.

ILLINOIS H. S. COACHES ASSN.—Champaign, Ill. Aug. 18-22. Norman A. Ziebell, director. Courses: Football, Basketball. Staff: Howie Odell, Bud Foster, Ernie Godfrey, Ray Eliot, Burt Ingwersen, others. Tuition: \$10.

INDIANA BASKETBALL SCHOOL—Logansport, Ind. Aug. 18-20. Cliff Wells, director. Staff: Ed Diddle, Everett N. Case, Cliff Wells, Cobby O'Neil, C. R. McConnell. Tuition: \$10.

IOWA H.S. ATHLETIC ASSN.—Spirit Lake, Iowa. Aug. 18-22. Lyle T. Quinn, director. Courses: Football, Basketball, Baseball, Training. Staff: Frank Leahy, Adolph Rupp, Bruce Drake, Roland Logan, others. Tuition: \$15.

ITHACA COLLEGE—Ithaca, N. Y. Aug. 17-23. I. Yavits, director. Courses: Basketball, Soccer. Staff: John Lawther, Chick Davies, Bill Jeffrey. Tuition: \$10 (+ \$10 for board and lodging).

KANSAS COACHING ASSN.—Topeka, Kan. Aug. 18-22. E. A. Thomas, director. Courses: Football, Basketball, Track, Baseball, Wrestling, Training. Staff: To be announced. Tuition: \$10.

LOUISIANA H. S. COACHES ASSN.—Shreveport, La. Aug. 11-15. F. H. Prendergast, director. Courses: Football, Basketball, Track, Baseball, Training. Staff: To be announced. Tuition: State Coaches, \$2; Others, \$10.

McKINLEY HIGH SCHOOL—Canton, Ohio. Aug. 11-16. Jimmy Robinson, director. Course: Football. Staff: Illinois and Ohio St. University Staffs. Tuition: Coaches Assn. Members, \$12.50; Others, \$17.50.

NEBRASKA H. S. ACTIVITIES ASSN.—Lincoln, Neb. Aug. 12-15. O. L. Webb and A. J. Lewandowski, directors. Courses: Football, Basketball, Track, Baseball. Staff and Tuition: To be announced.

NEW YORK H. S. ATHLETIC ASSN.—Ithaca, N. Y. Aug. 25-30. Philip J. Hammes, director. Courses: Football, Basketball, Baseball, Track, Six-Man Football, Training. Staff: To be announced. Tuition: Members, \$35; Others, \$50. See adv. on page 64.

NEW YORK ST. BASKETBALL SCHOOL—Hancock, N. Y. Aug. 21-23. John E. Sipos, director. Staff: Clair Bee, Frank Keaney, J. Birney Crum, Bunny Leavitt.

OKLAHOMA ST. COACHES ASSN.—Oklahoma City, Okla. Aug. 18-22. Leo K. Higbie, director. Course: Football. Staff: To be announced. Tuition: \$5.

PENN ST. COLLEGE—State College, Pa. June 10-27 (inter-session); June 30-Aug. 9 (main session); Aug. 11-30, Aug. 11-Sept. 20, Sept. 2-20 (post-sessions). Courses: All Sports, Health and Physical Education. Staff: College Faculty. See adv. on page 62.

RHODE ISLAND H. S. COACHES ASSN.—Providence, R. I. May 29-June 1. Edward Stebbin, director. Courses: Football, Basketball, Baseball, Track. Staff: Carl Snaveley, Herman Hickman, Rip Engle, John Lawther, others. Tuition: \$20.

SOUTH DAKOTA H. S. ATHLETIC ASSN.—(Address undecided.) Aug. 20-23. R. M. Walseth, director. Courses: Football, Basketball. Staff: To be announced. Tuition: Free.

TEXAS H. S. COACHES ASSN.—El Paso, Tex. Aug. 4-8. Harold Dement and Bill Carmichael, directors. Courses: Football, Basketball. Staff: Jess Neeley, Joe Davis, Bo McMillin, Adolph Rupp, Frosty Cox. Tuition: Members, \$10; Others, \$15.

UNIVERSITY OF ALABAMA—Tuscaloosa, Ala. Aug. 27-30. H. D. Drew, director. Courses: Football, Basketball, Track, Baseball. Staff: University Staff. Tuition: Free.

UNIVERSITY OF COLORADO—Boulder, Colo. June 12-July 17 (first term); July 19-Aug. 23 (second term). Harry Carlson, director. Courses: Football, Basketball, Track, Gymnastics. Staff: Jim Yeager, Frank Potts, Frank Prentup, Charles Vavra, Roland Balch, Paul Bradley. Tuition: Per term (5 weeks), \$24, resident; \$36.50, non-resident.

(Concluded on page 64)

It happened in 1897...

WM. McKINLEY WAS JUST BEGINNING his tragic term in the White House . . . Utah had joined the Union the year before making 45 states . . . It was in 1897 a cry was heard around the world, "Gold has been discovered in Alaska!" The Klondike Rush was on . . . Salomon August Andree, Swedish explorer and 2 companions left Danes Island, Spitzbergen, in a balloon for the North Pole—their bodies were found . . . 33 years later . . . 117 miles away on White Island.

IN 1897 ATHLETICS HAD THEIR MOMENTS of excitement, too . . . in Football, Harvard defeated Brown . . . Princeton beat Cornell . . . and, Yale stole the show by placing four men on the All-American Team—Chamberlain, Hall, Brown and DeSaulles . . . other All-American

members were Hare, Outland and Minds of Penn . . . Doucette and Debbles of Harvard . . . and Cochran and Kelly of Princeton. Those were the days when a field goal was good for 5 points . . . with a touchdown at 6 points.

IN THIS EXCITING YEAR OF 1897, a new company was established . . . Becton, Dickinson & Company began business, introducing many medical specialties which have become favorites today in offices of medical directors and team physicians . . . Nineteen years later B-D introduced the original all cotton elastic Ace Bandage, gaining immediate acceptance among American college athletic trainers. Yes, 1897 has its memories . . . and looking back, it has been an interesting Fifty Years.

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(Continued from page 63)

UNIVERSITY OF CONNECTICUT—Storrs, Conn. Aug. 25-29. George Van Bibber, director. Courses: Football, Basketball, Baseball, Track, Soccer, Swimming, Six-Man Football. Staff: University Staff, Herman Hickman, George Munger, others. Tuition: \$10 (+ \$15 for living expenses).

UNIVERSITY OF IOWA—Iowa City, Iowa. June 10-Aug. 6. E. G. Schroeder, director. Courses: Physical Education, Athletics.

UNIVERSITY OF KENTUCKY—Lexington, Ky. July 14-19. Bernie A. Shively, director. Courses: Football, Basketball, Baseball, Track. Staff: Adolph Rupp, Paul Bryant, others. Tuition: Free.

UNIVERSITY OF MINNESOTA—Minneapolis, Minn. June 16-July 25. Dr. Ralph A. Piper, director. Courses: Football, Basketball, Track, Physical Education. Staff: Bernie Bierman, Jim Kelly, Dave MacMillan, George Svendsen, others. Tuition: \$25.80. (Non-resident enrollment limited.)

UNIVERSITY OF MISSOURI—Columbia, Mo. June 12-14. Don Faurot, director. Courses: Football, Basketball, Baseball, Track, Tennis, Training. Staff: Don Faurot, Tom Botts, John Simmons, Wayne Thompson, O. J. DeVictor, W. N. Stalcup, others. Tuition: \$10. (Free to Missouri High School Coaches.)

UNIVERSITY OF NEBRASKA—Lincoln, Neb. June 16-Aug. 8 (long session); June 16-July 23 (short session). Louis E. Means, director. Courses: Physical Education, Coaching. Staff: University Staff.

UNIVERSITY OF NEW MEXICO—Albuquerque, N. M. Aug. 18-23. Elwood Romney, director. Courses: Football, Basketball, Officiating. Staff: Eddie Anderson, George Sauer, Hank Iba. Tuition: Members of State Assn., \$5; Others, \$10.

UTAH ST. AGRICULTURAL COLLEGE—Logan, Utah. June 9-13. E. L. "Dick" Romney, director. Courses: Football, Basketball. Staff: Wally Butts, Lee Patton. Tuition: \$10.

UTAH H. S. COACHES ASSN.—Logan, Utah. Aug. 25-30.

WASHINGTON ST. COLLEGE—Pullman, Wash. June 23-Aug. 1. J. Fred Bohler, director. Courses: Football, Basketball, Track, Physical Education. Staff: Dr. H. H. House, Phil Sorboe, A. B. Bailey, Jack Friel, Jack Mooberry. Tuition: \$26.

WENTWORTH MILITARY ACADEMY—Lexington, Mo. Aug. 12-15. Capt. Ed "Chink" Coleman, director. Courses: Football, Basketball, Training. Staff: Don Faurot, Hank Iba, Wilbur Stalcup, others. Tuition: \$10 (includes room).

WILLIAM & MARY—Williamsburg, Va. July 14-18. R. N. McCray, director. Courses: Football, Basketball, Track, Baseball, Training. Staff: R. N. McCray, Marvin Bass, Tom Power, R. F. Gallagher. Tuition: Free (but must pay for room and board).

WISCONSIN H. S. COACHES ASSN.—Madison, Wis. Aug. 18-23. Harold A. Metzger, director. Courses: Football, Basketball. Staff: Fritz Crisler, Harry Stuhldreher, Bud Foster, others. Tuition: To be announced.

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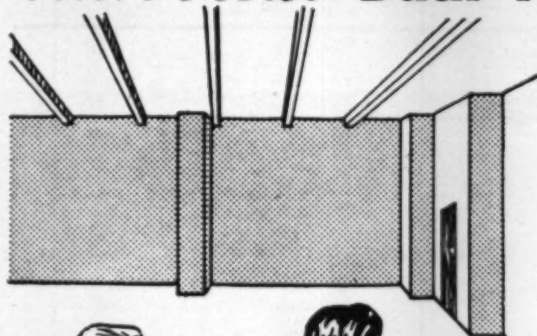
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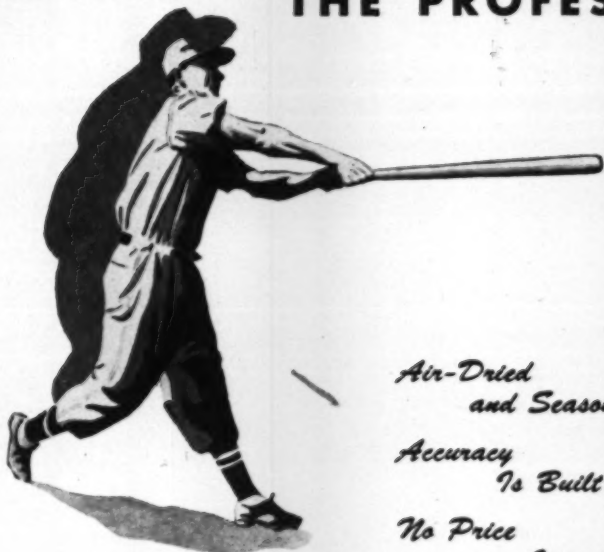
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OUTDOOR TRACK and FIELD RECORDS, 1947

	NATIONAL HIGH SCHOOL RECORDS	NATIONAL COLLEGE RECORDS	WORLD'S RECORDS
100-YD. DASH	9.4s. JESSE OWENS East Tech., Cleveland, O., 1933	9.4s. Simpson, Ohio St., 1929 Maier, Iowa St., 1930 Wykoff, U.S.C., 1930 Metcalf, Marquette, 1933 Owens, Ohio St., 1935, 1936 Jeffrey, Stanford, 1940 Davis, California, 1942	9.4s. FRANK WYKOFF U.S.A., 1930 JESSE OWENS U.S.A., 1935
220-YD. DASH	20.7s. JESSE OWENS East Tech., Cleveland, O., 1933	20.3s. JESSE OWENS Ohio State, 1935	20.3s. JESSE OWENS U.S.A., 1936
440-YD. RUN	48.2s. HERB MOXLEY Central, Columbus, O., 1928	46.2s. HERB MCKENLEY Illinois, 1946	46.4s. BEN EASTMAN U.S.A., 1932 GROVER KLEMMER U.S.A., 1941
880-YD. RUN	1m. 54.4s. R. L. BUSH Sunset H. S., Dallas, Tex., 1933	1m. 49.8s. ED. BURROWES Princeton, 1940	1m. 49.2s. SIDNEY WOODERSON Great Britain, 1938
ONE-MILE RUN	4m. 21.2s. LOUIS ZAMPERINI Torrance, Cal., H. S., 1934	4m. 6.7s. GLENN CUNNINGHAM Kansas, 1934	4m. 1.4s. GUNDER HAAG Sweden, 1945
120-YD. HURDLES (3 ft. 3 in. hurdles)	14s. JOE BATISTE Tucson, Ariz., H. S., 1939	13.7s. (3 ft. 6 in. hurdles) FRED WOLCOTT Texas, 1940	13.7s. (3 ft. 6 in. hurdles) FORREST G. TOWNS U.S.A., 1936 FRED WOLCOTT U.S.A., 1941
200-YD. HURDLES (2 ft. 6 in. hurdles)	22.1s. DON POLLOM Topeka, Kans., 1938 BILL HAMMAN Sunset, Dallas, 1941 FRED BATISTE Tucson, Ariz., 1944	22.6s. (220-yd. course) JESSE OWENS Ohio State, 1935	22.5s. (220-yd. course) FRED WOLCOTT U.S.A., 1940
HIGH JUMP	6ft. 7$\frac{1}{8}$in. GILBERT LA CAVA Beverly Hills, Cal., H. S., 1938	6ft. 11in. LES STEERS Oregon, 1941	6ft. 11in. LES STEERS U.S.A., 1941
BROAD JUMP	24ft. 11$\frac{1}{4}$in. JESSE OWENS East Tech., Cleveland, O., 1933	26ft. 8$\frac{1}{4}$in. JESSE OWENS Ohio State, 1935	26ft. 8$\frac{1}{4}$in. JESSE OWENS U.S.A., 1935
POLE VAULT	13ft. 9$\frac{5}{8}$in. JOHN LINTA Mansfield, O., H. S., 1939	14ft. 11in. EARLE MEADOWS U.S.C., 1937 BILL SEFTON U.S.C., 1937	15ft. 7$\frac{3}{4}$in. CORNELIUS WARMERDAM U.S.A., 1942
SHOT PUT (12 lbs.)	59ft. 5$\frac{7}{8}$in. JOHN HELWIG Mt. Carmel, Los Angeles, 1946	56ft. $\frac{1}{2}$in. (16-lb. shot) AL BLOZIS Georgetown, 1940	57ft. 1 in. (16-lb. shot) JACK TORRANCE U.S.A., 1934
RELAY—440-YDS.	42.4s. Glendale, Cal., H. S., 1928	40.5s. U.S.C., 1938	40.5s. U.S.C., U.S.A., 1938
RELAY—880 YDS.	1m. 28.2s. Polytech H. S., Los Angeles, 1931	1m. 25s. Stanford, 1937	1m. 25s. Stanford, U.S.A., 1937
RELAY—ONE MILE	3m. 21.4s. Hollywood, Cal., H. S., 1929	3m. 9.4s. California, 1941	3m. 9.4s. California, U.S.A., 1941
RELAY—TWO MILES	8m. 5.5s. Roosevelt, Des Moines, Ia., 1938	7m. 34.5s. California, 1941	7m. 34.6s. California, U.S.A., 1941

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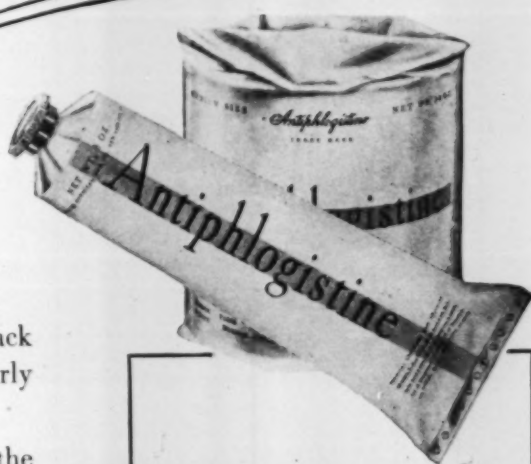
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NEW FILMS for the Coach

Baseball: (1) HITTING, (2) THROWING, (3) CATCHING. Produced by Encyclopaedia Britannica Films, Inc., in collaboration with Jimmy Dykes and Hollis Thurston. Supervised by Norman Sper. 16-mm., sound, 20 minutes each. Set, \$135, Each, \$45.

WHEN the Encyclopaedia Britannica Films people do a technical sports film, they do it right. Their three football films (reviewed in September) and their three basketball films (reviewed in October) were excellently thought-out, professionally produced jobs—as you men who have seen them will attest.

The baseball series conforms to the same high standards. Splendidly photographed, with the Hollywood Club of the Pacific Coast League serving as models, the three films reduce the elements of hitting, catching and throwing into simple fundamentals in a manner ideal for coaching purposes.

Hitting touches on every technique graphically and comprehensively. You see the various grips, the correct stance, the step, swing and follow-through; then the entire coordinated swing. Each phase is analyzed carefully from various angles and repeated over and over again for emphasis.

Throwing analyzes the overhand, three-quarters, side-arm, and underhand types of throws. The fundamentals (arm, leg, body and head positions) are described in complete detail, with the camera stopping at key spots. The film also shows you the proper way of receiving the ball and shifting into position for the throw.

Catching embraces the receiving of low balls, waist-high balls and fly balls. Every body action is carefully analyzed and repeated any number of times for additional stress.

All the latest educational devices are used to highlight the skills in these films—devices like slow motion, stop action, animated symbols and double printing, which enables you to compare and contrast at a glance different types of hitters and throwers.

The narration is simple and authoritative, describing the action as you see it.

Track and Field: (1) THE HIGH JUMP, (2) THE BROAD JUMP, (3) THE POLE VAULT. Produced by Coronet Instructional Films under the supervision of Dean B. Cromwell. 16-mm., sound. 10 minutes each. Price, \$45 each.

THE proper techniques of high jumping, broad jumping and pole vaulting are graphically demonstrated and expertly analyzed in these three films. The models are U.S.C. varsity men, and the analyst is their coach, Dean Cromwell, perhaps the most famous track coach in America.

Normal action, slow motion and stop-action drive home the finer points of technique and, together

with an excellent commentary, detail the fundamentals with sharp clarity.

The High Jump analyzes the two popular types of Western roll—side roll and belly roll, and gives a complete set of exercises for the high jumper, including: low hurdling, wind sprints, jogging, rope skipping, pull-ups, and push-ups.

The jump is then broken down into its components—approach, take-off, etc. The film is concluded with a brief analysis of the High Hurdles.

The Broad Jump gets going with a repertory of fundamental drills, embracing: pull-ups, push-ups, hip swings, bicycling, sprinting, low hurdling, and walking on the toes.

The event is then analyzed in entirety and topped off with a pithy analysis of the Hop, Step and Jump.

The Pole Vault also starts with a number of helpful conditioning drills: chinning, rope exercises, hand-stands, walking, and squeezing rubber balls.

Cromwell then describes the grip, approach, flight, and clearance. The analysis is greatly helped by demonstrations of the vault from different angles.

Coaches and young athletes can both use these films with a great deal of benefit.

VOLLEYBALL FOR BOYS. Produced by Coronet Instructional Films. Lloyd Miller and Frank Overton, educational advisors. 16-mm., sound, 10 minutes running time. Price, \$45.

HERE is a truly educational volleyball film, ideal for high school physical education and intramural directors. Prepared by two school men, with schoolboy players as models, it has been acclaimed as one of the best instructional films in the physical education field.

The film starts with a description of the game, showing just how the positions are rotated and the points scored. The authors then describe each of the fundamentals—serve, volley, set-up, spike and defense.

The fundamentals are clearly illustrated and supplemented with team drills on how each skill may be developed.

The film is a dandy. We recommend it to school physical education departments.

Of exceptional value to the school physical education director is a section showing (and telling) how the game may be adapted to different-sized groups (five, seven, eight and nine to a side).

Coaches seeking further information, not given in these reviews, on any of the films in this department should write to: Scholastic Coach, New Films Dept., 220 E 42nd St., New York 17, N. Y.

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Infield Play

(Continued from page 13)

then makes the pivot and the throw to first base.

You cannot set any one method of pivoting. The secret is to get to the bag in position to take any throw. If the throw is accurate, you can touch the bag with the left foot, pushing off on the right foot—getting out of the way of the runner and throwing to first either inside or in back of the bag, depending on the throw from the shortstop.

The second baseman's position also depends on the hitter. If he is playing deep toward first base and has a play at second base, he must field the ball, stop, pivot and throw. This is a hard play and must be practiced a lot.

If a bunt is in order, it is the second baseman's duty to cover first. Therefore, he must shorten up his position toward the diamond, giving ground toward the batter. Then he is in position to be on time in covering first base.

It is the second baseman's job to handle all relays on balls hit for extra bases to right or right center field. Here again, team-work is vital between shortstop and second baseman on covering second and backing up the relay throw.

If there is no play at second base and a triple or home run is in the offing, it is wise for the shortstop to back up the relay. If it is a bad throw and gets past the second baseman, he will thus be in position to field the ball. This saves many a close game.

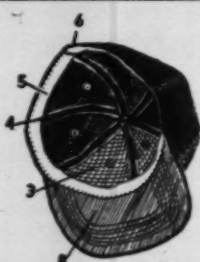
Since the shortstop has the longest throw of any infielder, he must have a good arm. Unless he can make the play on balls hit to his right, he will not last long. That is his hardest play, and he should practice it all the time.

He always works with the second baseman on covering the bag, making double plays, holding runners on base, taking cut-offs, relays, breaking up double steals, relaying signals to the outfield and third base, and backing up second base whenever possible. His is the toughest job in the infield.

On a double play, he must get to the bag as quickly as possible, coming to a stop just before he reaches the bag, if possible. Then he is in position to take almost any kind of throw, step on the bag for the FIRST OUT, and then throw to first to complete the double play.

Again, you cannot set any one method of tagging the bag. I used to try to step on the bag with my right

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foot and throw, stepping out of the runner's path with my left foot. In this way, I had the ball on its way before the runner could interfere with the throw.

Many times, on close plays, you have to take the throw and step directly into the runner. Therefore, if you get the ball away by throwing with the right foot on the bag, the ball will be in flight before you are knocked down.

Every runner has the right to break up a double play, so learn not to be spike shy. Get the ball away as quickly as possible, be accurate, and throw the ball directly at the base runner; make him slide.

The shortstop, in most instances, should hold the runner close to second base; keep him from getting that extra step when the ball is hit. There are many ways of teaming up with the pitcher to catch a man off second.

The catcher can signal to the pitcher that the shortstop is going to cover the bag. The pitcher doesn't even look toward second; he just counts three, turns and throws. The shortstop can give the sign; either a word sign or a physical sign can be used.

CARDINAL TRAP

At St. Louis we used this play—the shortstop would shorten his position, then run the runner back by going directly toward him; as soon as he caught the runner off balance, he broke for the bag. The signal for the pitcher is any time he can see daylight between the runner and the shortstop. He then turns and throws. In 1930 we caught 12 men off second with this method.

The third baseman. You must have a good arm to make long throws, be able to block hard hit balls, and field slow hit balls and bunts. You must play about even with the bag (until the batter has two strikes on him) to protect on slow hit balls and bunts. Go to a deep position for the third strike. You must protect the foul line on right-hand hitters to prevent extra-base hits. You must learn to know the fast men, men who are liable to bunt at any time.

The hardest play is with men on first and second, no one out and the bunt in order. The third baseman should call time out, go in and tell the pitcher exactly what he intends to do. He should play about ten feet in front of third base toward home plate, about four feet from the foul line.

He holds this position until the ball is bunted. If it is bunted hard, he goes for the ball and should have

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- ☐ Catalogs: Bases, Mats, Rings, Training Bags, Wall Pads, Pad Covers
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- ☐ Information on Perma-Hide Athletic Balls

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RAWLINGS (3)

- ☐ Catalog

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REMINGTON ARMS (34)

- ☐ Instructor's Manual on Operation of Rifle Club

REVERE ELECTRIC (64)

- ☐ Sports Floodlighting Bulletin
- ☐ Catalog

JOHN T. RIDDELL (31)

- ☐ Information on Plastic Helmets, Shoes, Balls, Track Supplies

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SPALDING & BROS. (1, 43)

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- ☐ Sports Show Book

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April, 1947

a play at second base, which can be turned into a double play. If it is bunted easy, he covers third for a force out. By holding his position until the ball is bunted, he can get back to third in case there is a fake bunt and an attempted steal of third.

He should tell the pitcher to break toward third as soon as he has delivered the pitch, so that he can take an easy bunted ball. The first baseman is in and protects the pitcher on the first-base side of the diamond. This play should be practiced a lot as it takes good judgment and timing to learn when to go in and when to cover third.

With a man on first base, the third baseman should always back up a return throw to the pitcher by the first baseman.

Once in a while it may be necessary for the shortstop to cover the bag, with the third baseman backing up.

In summarizing infield play, all players must keep their heads up, know the score, how many outs, number of men on base, be ready for any kind of a play, be a quick thinker, ready to change a play if the ball is fumbled, know the hitter and where to play each one, know your pitcher, what his best pitch is, how good a fielder he is.

BE ALERT AT ALL TIMES. Hustle in and out to your positions, talk it up to encourage each other and your pitcher. If you fumble a ball don't let it bother you—keep your spirits up and get the next one.

This all sounds very complicated, but by continued practice and playing every day these plays become second nature to you, and you automatically do the right thing at the right time.



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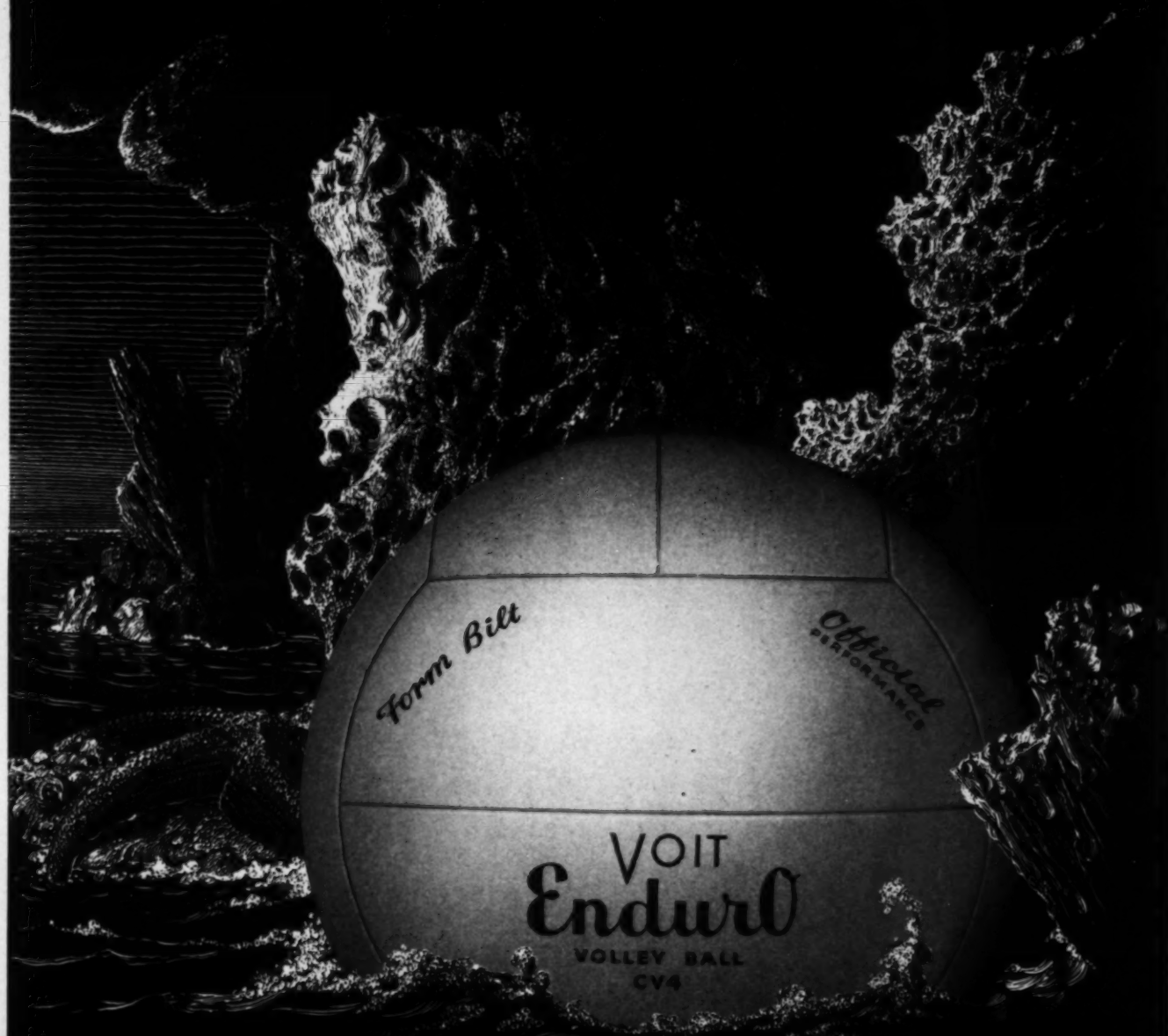
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